

## Service Engineers Complete Program For 4th Meeting

(Concluded from Page 1, Column 5)  
Refrigeration Supply Jobbers' Association.

After reports by H. T. McDermott, national secretary, and S. A. Leitner, national treasurer, and the chairmen of national association committees, current committees will be named and the first day's session closed.

Second day's business meeting will feature addresses on "The Independent Service Organization and a National Organization," by W. D. Ambrose, Mills Novelty Co.; "Merchandising," by G. E. Stedman, Cramer-Krasselt Co., Milwaukee; and "Heat Transfer Surfaces," by Joe Askin, Fedders Mfg. Co. A motion picture on "Heat and Its Control" will be shown through cooperation of Johns-Manville Co.

Election of officers for the coming year will close the second day's business session.

Business meeting on the convention's third day will include talks on "Application and Adjustment of Controls," by H. K. Pride of Minneapolis-Honeywell Regulator Co.; "A Typical Air-Conditioning Job," by W. S. Bodinus of Carrier Corp.; and "Service Analyzer," by D. D. Wile of Detroit Lubricator Co.

A motion picture on "The Operation of an Expansion Valve" will be shown by Frigidaire Corp.

Reports of chapter delegates from individual cities, and committee reports, will close the convention.

A full program of entertainment has been scheduled for the three days of the convention. Annual R.S.E.S. banquet will be held on the evening of Nov. 3, with a "Monte Carlo Night" as the exhibitors' offering to convention-goers on Nov. 4. Last night of the meeting will feature a cabaret farewell party.

### EXHIBITORS

Exhibitors who will show their products at the convention, and the number of the booth they will occupy, are as follows:

Duro Metal Products Co., Chicago, No. 1; Alco Valve Co., St. Louis, No. 2; Commercial Coil & Refrigeration Co., Chicago, No. 3; Penn Electric Switch Co., Goshen, Ind., Nos. 4 and 5; Rotary Seal Co., Chicago, No. 6; Art Valve Co., Chicago, No. 7; R & H Chemicals, Wilmington, Del., No. 8; Modern Equipment Corp., Defiance, Ohio, No. 9; Mueller Brass Co., Port Huron, Mich., No. 10; Peerless of America, Inc., Chicago, Nos. 11 and 12.

Servel, Inc., Evansville, Ind., No. 13; Mario Coil Co., St. Louis, No. 14; Airo Supply Co., Chicago, No. 15; James P. Marsh Corp., Chicago, No. 16; South Bend Lathe Works, South Bend, Ind., No. 17.

Henry Valve Co., Chicago, No. 18; Automatic Heating & Cooling Supply Co., Chicago, No. 19; Chicago Wilcox Co., Chicago, No. 20; L. H. Gilmer Co., Philadelphia, No. 21; Herman Goldberg Co., Chicago, No. 22.

Ranco, Inc., Columbus, Ohio, No. 23; Kellogg Compressor & Mfg. Co., Rochester, N. Y., No. 24; Snap-On Tools, Inc., Kenosha, Wis., No. 25; Zenith Carburetor Co., Detroit, No. 26; Minneapolis-Honeywell Regulator Co., Minneapolis, Nos. 27 and 28.

American Injector Co., Detroit, No. 29; Fedders Mfg. Co., Inc., Buffalo, No. 30; Kold-Hold Mfg. Co., Lansing, Mich., No. 31; Kerotest Mfg. Co., Pittsburgh, No. 32; Business News Publishing Co., Detroit, No. 33.

Detroit Lubricator Co., Detroit, No. 34; General Electric Co., Cleveland, No. 35; Victor Mfg. & Gasket Co.,

Chicago, No. 36; Howe Ice Machine Co., Chicago, No. 37; Tecumseh Products Co., Tecumseh, Mich., No. 38.

American Radiator Co., New York City, No. 39; The Starr Co., Richmond, Ind., No. 40; Bonney Forge & Tool Works, Allentown, Pa., No. 41; Borg Warner Service Parts Co., Chicago, No. 42; Automatic Products Co., Milwaukee, No. 43.

Harry Alter Co., Chicago, No. 44; Detroit Lubricator Co., Detroit, No. 45; Bush Mfg. Co., Hartford, Conn., No. 46; Kelvinator Corp., Detroit, No. 47; Dayton Rubber Mfg. Co., Dayton, No. 48.

Perfection Refrigeration Parts Co., Harvey, Ill., No. 49; Imperial Brass Mfg. Co., Chicago, Nos. 50 and 51; Wolverine Tube Co., Detroit, No. 52; Rempe Co., Chicago, No. 53; Mills Novelty Co., Chicago, No. 54; Cutler-Hammer, Inc., Milwaukee, No. 55.

Ansul Chemical Co., Marinette, Wis., No. 56; Copeland Refrigeration Corp., Detroit, Nos. 57 and 58; Spoehrer-Lange Co., St. Louis, No. 59; H. Channon Co., Chicago, No. 60; Virginia Smelting Co., West Norfolk, Va., Nos. 61 and 62.

Universal Cooler Corp., Detroit, No. 63; G & G Genuine Majestic Refrigerator & Radio Parts Service, Chicago, No. 64; Rex Refrigeration Service, Chicago, No. 65; Weatherhead Co., Cleveland, No. 66.

American Brass Co., Waterbury, Conn., No. 67; F. H. Langsenkamp Co., Indianapolis, No. 69; Brunner Mfg. Co., Utica, N. Y., No. 70; Syntrol Co., Homer City, Pa., No. 72.

## Westinghouse Now Has Package Conditioner

(Concluded from Page 1, Column 1)  
60,000 to 100,000 B.t.u., will be available before the first of next year.

Oil-fired furnaces are available in capacities from 100,000 to 190,000 B.t.u., and before the first of next year will be supplemented by units ranging from 50,000 to 100,000 B.t.u.

Distribution of the new home air-conditioning equipment will be controlled from Westinghouse merchandising headquarters here, and will be made through franchised dealers.

While distribution will not officially begin until Jan. 1, 1938, models of the conditioning units are available for demonstration and display, and a number are being installed for "home proving" purposes.

The units are designed to provide year-around air conditioning, but their flexibility is such that only the winter conditioning equipment may be installed first, with provision for later addition of summer cooling at a reasonable additional cost.

## Frigidaire Distributors Preview 1938 Lines

(Concluded from Page 1, Column 2)

Frigidaire's household division, is chairman of the activities. Participating in various parts of the three-day program will be: E. B. Newill, assistant general manager; Charles T. Lawson, household division sales manager; J. M. Rushton, electric range sales manager; W. I. Buchanan, washer sales manager; F. H. McCormick, range engineer.

L. A. Clark, household advertising and promotion manager; Lyn Brown, director of research, Lord & Thomas; S. V. White, household promotion staff; J. A. Mitzelfelt, washer sales staff; H. M. Williams, manager of standards division; E. R. Godfrey, works manager; Ray Fox, General Motors Acceptance Corp.; and H. M. Kelly, apartment house manager.

## Important Connection for

**REFRIGERATOR DISTRIBUTOR'S "TOP" SALESMAN!**

NEW marketing program affords immediate opportunity for refrigerator distributor's star sales producer to affiliate in executive capacity with nationally known domestic refrigerator manufacturer. Connection imposes responsibilities of major proportions in territorial development, therefore, to qualify applicant must be proved business getter with top rank sales record in leading distributing organization. Personal interviews will be granted all who qualify. Write, giving detailed account personal and commercial backgrounds. All correspondence strictly confidential.

Manufacturer J.B. c/o Air Conditioning & Refrigeration News.

# A Marvelous Record

THE SUPER-COLD CORPORATION  
1020 EAST 59TH STREET  
LOS ANGELES, CALIFORNIA  
September 2, 1937

Automatic Products Company  
2450 North 32nd Street,  
Milwaukee, Wisconsin  
Attention Mr. R. W. Johnson

Gentlemen:  
It may interest you to know the experience we are having with your thermostatic valves in connection with our ice cream cabinets.

Formerly we had considerable amount of difficulty with moisture working in around the amount of field service in connection with thermostatic valves. About a year and a half ago we started to experiment in various localities on ice cream equipment and we finally started the use of your product in the field on this particular type of equipment.

Up to the present time we have not had a single service call regarding moisture, valve adjustments or mechanical failure of the valve to perform. This we consider a marvelous record inasmuch as our past experience showed that approximately 70% of all our field service was caused directly or indirectly by expansion valve difficulties.

Very truly yours,  
J. R. Lindell  
GENERAL SALES MANAGER

for



## Controls...

Control Equipment plays an important part in the satisfactory operation of any kind of Refrigeration Unit. Recognizing this, the leading Refrigeration Manufacturers make an extensive study of all controls before choosing one upon which they are willing to place the same trust they give their own equipment. For with that Control rests the efficiency, the reputation of their engineering efforts.

The Choice of A-P Expansion Valves and Solenoids by some of the largest manufacturers of Refrigeration equipment is gratifying proof of A-P Dependability.

The unqualified praise of such important and well-known firms as Super-Cold Corporation of Los Angeles, manufacturers of Ice Cream Freezers, and Hardening Cabinets, is typical of the wide-spread satisfaction that A-P Valves are providing everywhere, on all kinds of installations, in Refrigeration and Air Conditioning.

Searching for an explanation of this Dependability, this "Marvelous Record" of service-free efficiency, you will find it in A-P Precision methods of manufacture. Rigid inspections, tests, constant study of A-P Valves under actual and adverse operating conditions, careful workmanship by men who understand the responsibility of accuracy—this accounts for the service-free efficiency, accuracy, sensitivity of A-P Valves.

Progressive Jobbers Everywhere Stock A-P Controls



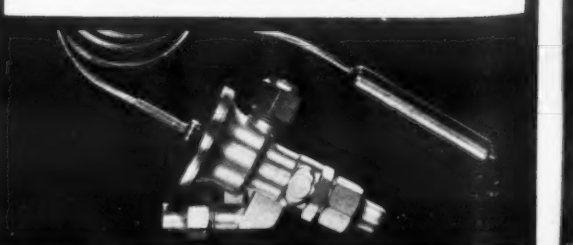
The Super-Cold Corporation, Los Angeles  
1020 East 59th Street, Los Angeles, Calif.



Super-Cold Ice Cream Cabinet Equipped with A-P Valves, Installed in Drug Store



Another Super-Cold Cabinet



A-P Expansion Valve, Model No. 205,  
Used on Many Super-Cold Cabinets



**AUTOMATIC PRODUCTS COMPANY**  
2450 NORTH THIRTY-SECOND STREET  
MILWAUKEE WISCONSIN



## REFRIGERATION NEWS

Trade Mark Registered U. S. Patent Office. Established 1926 as Electric Refrigeration News.  
Member Audit Bureau of Circulations. Member Associated Business Papers.VOL. 22, No. 10, SERIAL No. 450  
ISSUED EVERY WEDNESDAYEntered as second-class  
matter Aug. 1, 1927

DETROIT, MICHIGAN, NOVEMBER 3, 1937

Copyright, 1937, by  
Business News Pub. Co.FOUR DOLLARS PER YEAR  
TWENTY CENTS PER COPYWestinghouse Spotlights Added  
'Use' Features on Line of  
1938 RefrigeratorsPrices Are 6 to 7% Higher  
Than in 1937; Larger  
Evaporator Used

MANSFIELD—New and refined "use" features designed to make the refrigerator do a better job of food preservation and at the same time more convenient to use, are the distinguishing marks of the new line of Westinghouse electric refrigerators, which are now being introduced to dealers.

Cabinet contours are very much the same as the 1937 models, and only minor refinements have been incorporated in the refrigerating system. Most significant of the system changes is the use of a considerably enlarged evaporator.

Suggested retail prices (zone 2) start at \$119.50 and range about 6 to 7% higher than suggested retail prices for comparable models in the 1937 Westinghouse line.

Model	Net Cu. Ft.	Hostess Series
HDS-32	3.2	\$119.50
HDS-42	4.2	144.50
HDS-52	5.2	189.50
HDS-62	6.2	219.50
HDS-72	7.2	239.50

Model	Net Cu. Ft.	Aristocrat Series
HD-52	5.2	\$199.50
HD-62	6.2	229.50
HD-72	7.2	259.50
HD-95	9.5	294.50

Model	Net Cu. Ft.	Special Series
HS-32	5.2	\$169.50
HS-62	6.2	189.50
HS-72	7.2	209.50

Model	Net Cu. Ft.	Patrician Series
HPS-52	5.2	\$209.95
HPS-62	6.2	239.50
HPS-72	7.2	264.50

Model	Net Cu. Ft.	Emperor Series
HP-62	6.2	\$259.50
HP-72	7.2	279.50
HP-95	9.5	319.50
FP-135	13.5	494.50
FP-200	20	593.50

Westinghouse is emphasizing in the promotion of its new line that  
(Concluded on Page 2, Column 3)Ultra-Violet Light Used  
In New Leak Detector

WASHINGTON, D. C.—"Invisible" light and a dark room are combined to form a new refrigerant leak detector which is apparently to be used by Frigidaire division of General Motors Corp. in testing refrigerating units before they are put into the field, it was recently made known in the granting of a patent for such a device to Richard S. Gaugler of Dayton.

The patent (No. 2,096,099) is assigned to General Motors Corp. It  
(Concluded on Page 14, Column 2)Milwaukee Dealers Renew  
Group Buying Fight

MILWAUKEE—In a continuation of its fight against group buying of appliances at a discount by members of Milwaukee industrial plants, the Wisconsin Radio, Refrigeration and Appliance Association is sending a series of five letters to the executives of more than 200 industrial and business concerns, urging their cooperation in seeing that their employees buy appliances only from regular dealers at established retail prices.

After calling the association's 1936 campaign to mind, and reviewing its results, the letters ask company executives  
(Concluded on Page 2, Column 2)

## IN THIS ISSUE

There's lots of news in this issue—about the introduction of 1938 models of household electric refrigerators, shifts in personnel, the progress of fair trade and price maintenance movements by retailers, and other happenings that make industry news now.

But there are also articles for the service and installation engineer, aimed to help him in his daily work and to meet new problems.

For example, there's a discussion by Service Editor K. M. Newcum of keeping a retail meat store refrigeration system operating satisfactorily through the widely fluctuating range of store temperatures. You'll find it on page 26. And on page 28 there's some information on installation methods that should prove helpful to the refrigeration and air-conditioning installation engineer.

Another service article on pages 22 and 23 deals with the proper service methods to be used on the Servel electric household refrigerator.

Of particular interest to those engaged in air-conditioning work is a suggestion for some cost-saving methods in the installation of a central comfort cooling system for an old residence which is included in an article on pages 28 and 29.

## NEXT WEEK

In its next (Nov. 10) issue, AIR CONDITIONING AND REFRIGERATION NEWS plans to present a complete report of the meetings of the Refrigeration Service Engineers Society, the National Refrigeration Supply Jobbers' Association, and the Refrigeration Supplies and Parts Manufacturers' Association, being held this week at the Stevens hotel in Chicago.

ACMA to Aid Firms on  
Advertising Copy

CHICAGO—The advertising committee of Air Conditioning Manufacturers Association will enlarge its activities as an advisory bureau on copy themes for use by association members, and will cooperate with the Federal Trade Commission and Better Business Bureau in the "policing" of air-conditioning copy to insure its conformance with FTC standards, William B. Henderson, (Concluded on Page 3, Column 3)

Miller Is Appointed  
Household Sales  
Manager of G-E

CLEVELAND—L. H. Miller, manager of the Allentown, Pa., branch of General Electric Supply Corp., has been named sales manager of the household refrigeration sales section of the General Electric Co. and will assume his new position Dec. 1, according to A. M. Sweeney, manager of the section.

First contacting the G-E organization as a refrigerator dealer in 1925, L. H. Miller subsequently became president of the Electric Refrigeration  
(Concluded on Page 6, Column 5)Temprite Moves Into  
New Headquarters

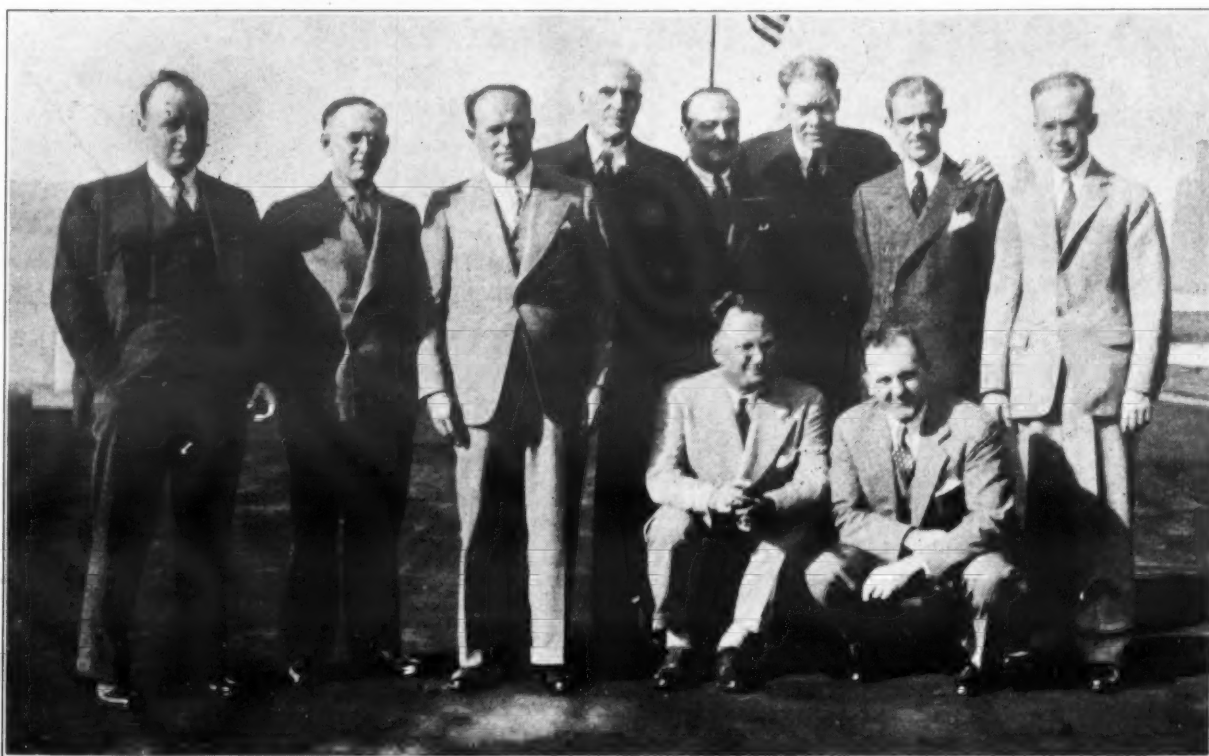
DETROIT—Temprite Products Corp., manufacturer of beer and beverage cooling equipment, has moved its offices and factory to a three-story building at 47 Piquette Ave. here, where the company will have available a floor area of 45,000 sq. ft., more than double the space it had in its former location at 1349 E. Milwaukee Ave.

Temprite has purchased the prop-  
(Concluded on Page 6, Column 5)Evans Reelected Nema  
Division Chairman

CHICAGO—Thomas Evans, president of Merchant &amp; Evans Co., was re-elected chairman of the Refrigeration Division of National Electrical Manufacturers Association and also chairman of the household section of the Refrigeration Division, at the annual Nema meeting held last week at the Palmer House.

J. A. Harlan, head of Kelvinator's commercial division, was re-elected chairman of Nema's commercial refrigeration section.

## Plan Cooperative Program for Parts Makers



The men in the above picture are part of a group consisting of directors and convention committee of the Refrigeration Supplies and Parts Manufacturers' Association, which group met in Chicago early last month to plan the program for the Association's convention being held this week

in Chicago—a program which may evolve a new plan of industry cooperation. In the picture above are standing (left to right): John Wyllie, Jr., Temprite Products Corp.; G. E. Graff, Ranco, Inc.; D. H. Daskal, Perfection Refrigeration Parts Co.; W. A. Leonard, Imperial Brass Mfg. Co.; K. B.

Thorndike, Detroit Lubricator Co.; R. M. McClure, secretary of the Association; Earl A. Vallee, Automatic Products Co.; F. M. Cockrell, publisher, AIR CONDITIONING AND REFRIGERATION NEWS. Seated (left to right) J. S. Forbes, Kerotest Mfg. Co. and J. D. Colyer, Wolverine Tube Co.

Frigidaire Claims 1938 Models  
Will Cost Less to Operate;  
Line Shown in New YorkFive Electric Ranges  
Are Included in  
New Line

DAYTON—Marking the entry of General Motors Corp. into the general household appliance field, Frigidaire this week is introducing five electric range models for which a list of 25 features is claimed, among them enclosed three-heat cooking units, a well cooker, smokeless broiler, hydraulic thermostat, time signal, automatic electric time control, all-porcelain cabinet, and one-piece base type design.

The ranges are priced in the fastest selling levels, suggested Zone 2  
(Concluded on Page 25, Column 2)Dealers in Wisconsin  
Draft Trade Pact

MILWAUKEE—A standard fair trade agreement for the use of distributors and dealers who wish to enter into pacts under the Wisconsin fair trade act has been drawn up as a result of a series of meetings by distributor-dealer representatives here recently.

Highlights of the agreement are:

1. The pact runs to Apr. 30, 1938, but either party may terminate it sooner by giving the other party written notice.

2. The dealer agrees to sell merchandise only and directly to the ultimate consumer, and not through any intermediaries. Such sales are limited to the distributor.

3. The dealer agrees to display and use his best efforts to sell the distributor's products.

4. Regarding radios, the dealer agrees to sell the make of receivers he handles in their original cabinets only.

5. The dealer agrees to advertise the distributor's brands locally, as a tie-in with national advertising. The distributor, however, reserves the  
(Concluded on Page 2, Column 1)Refrigerators Brought Out  
Three Months Earlier  
Than Usual

DAYTON—Advancing introduction of its 1938 household products to a date three months earlier than has been its custom in previous years, Frigidaire division of General Motors Corp. this week put 15 new refrigerator models and five models of its new electric range line on display at the General Motors' exhibit at the Waldorf-Astoria hotel, New York City, and at the fall buyers' market at the American Furniture Mart, Chicago.

These showings followed by but 72 hours a preview for more than 500 district representatives, district managers, and distributors from territories in the United States and Canada, held last week at the Art Institute in Dayton.

A major slash in operating costs, made possible by several basic developments in design and construction of both the mechanical units and the cabinets, is claimed as leading feature of the Frigidaire 1938 household refrigerator line.

Suggested retail installed selling prices (zone 2), including regular \$5 protection plan charge, of the 1938 line are:

Model	Price
D-3	\$119.50
Special 5-38	124.50
Special 6-38	154.75
Special 7-38	204.75
Master 4-38	144.50
Master 5-38	184.50
Master 6-38	214.50
Master 7-38	239.50
Master 8-38	264.50
De Luxe 5-38	209.50
De Luxe 6-38	239.50
De Luxe 7-38	264.50
De Luxe 8-38	289.50
Imperial	409.50

Other features claimed for the units include quieter operation, incorporated in the "silent meter"  
(Concluded on Page 6, Column 1)Landmesser Leaves G-E;  
Appointed Norge  
Commercial Mgr.

DETROIT—Walter Landmesser, who resigned his position as commercial refrigeration sales manager for General Electric Oct. 20, joined Norge Corp. Nov. 1 as manager of the commercial refrigeration department.

Mr. Landmesser has long been identified with the commercial refrigeration business. He organized the G-E commercial refrigeration department when, as he puts it, "it  
(Concluded on Page 31, Column 2)Bendix Will Maintain  
Prices in N. Y. Area

NEW YORK CITY—Established prices of Bendix home laundry equipment will be maintained without change in the metropolitan New York area, said Jud Sayre, vice president in charge of sales for Bendix Home Appliances, Inc., in an address here last week before 1,000 dealers in the Windsor theater.

The meeting, organized by Bruno-New York, Inc., distributor, in cooperation with the Bendix company, was held to demonstrate Bendix home laundry equipment and present sales plans to the assembled dealers.

"We will not allow ourselves to be undermined by chiseling dealers,"  
(Concluded on Page 25, Column 5)



## Wisconsin Dealers Draft Standard Trade Agreement

(Concluded from Page 1, Column 4) right to order the dealer to discontinue any type of advertising he thinks objectionable.

6. The distributor has the right to make rules concerning the sales, advertising, and distribution of his merchandise by the dealer.

7. The dealer agrees not to advertise, sell, or offer for sale any trade-in merchandise without specifying the year and model thereof, and stating that it is used merchandise. The same applies to damaged or deteriorated merchandise.

Other elements in the distributor-dealer agreement concern provisions of the Wisconsin fair trade act, and provide that:

The dealer may not sell products of the distributor below the prices set in making the agreement, or make any refunds, discounts, or concessions which will result in decreasing the stipulated price.

Dealer is required to pick up and transport to his place of business any article upon which he has made a trade-in allowance.

Retail cash price shall be the price stipulated in price schedules, less 2%, to be extended at the option of the dealer.

Dealer agrees not to give away any article of value to purchasers, unless the distributor agrees. He also agrees not to sell one article in combination with another.

If a dealer wishes to close out the line he sells, he agrees to offer the goods first to the distributor for an amount equal to cost, less the distributor's transportation charges. The distributor has 10 days in which to accept the offer.

Any breach of contract by the dealer will result in his paying damages of \$50 to the distributor for each such sale made, plus the price by which the stipulated minimum resale price exceeds the prices at which any of the products are sold. In addition, the dealer must pay the distributor \$500 for each advertisement in which such sale prices are offered.

## Fight Against Group Buying Continued In Milwaukee

(Concluded from Page 1, Column 1) executives to investigate possible group buying practices in their own firms, and to do their part in protecting the retailer in his effort to make sales at a fair profit.

Follow-up letters stress the recent rise of the group-buying practice, and the results which its continuance and extension are likely to hold for appliance dealers in the Milwaukee area.

Excerpts from the letters follow: "... this (group buying) evil has grown to such proportions that some large industries are going out of their way to buy many types of merchandise for their employees at wholesale, including electrical household appliances of various kinds.

"This organization appreciates the altruistic motives that prompt this form of employee-help, but it bemoans the fact that the continuance and growing practice of this type of buying will soon seriously jeopardize the very existence of these small merchants, who would otherwise get this business.

"At first thought, that might not seem to be a serious loss to industry, but by the inevitable cycle of business activity this loss would re-act to industry's disadvantage.

"The retailer, who performs a definite and necessary service in the community, cannot exist in the face of your own competition.

"Right here in our midst there exists a practice tending to put these little (but mighty important) businesses out of business. Yet there is nothing malicious about this effort.

"In ever so many industrial plants, the employees are permitted (and often encouraged) to buy their radios, washing machines, refrigerators, and other appliances at wholesale, through the company purchasing agent office.

"We are in sympathy with the motive that prompts this... but for the fact that this movement to 'buy it at wholesale' definitely deprives the retailer of a chance to earn a living."

## Westinghouse Puts New 'Use' Features On 1938 Models

(Concluded from Page 1, Column 1) the new convenience features of its 1938 models were suggested by the women who ran the 102 "proving kitchens" tests in which Westinghouse refrigerators were used.

Principal new items designed to make the refrigerators more useful are enclosed porcelain meat compartment located directly under the evaporator, a glass-top humidrawer for fruits and vegetables, a larger froster for additional frozen storage room, and a new and novel temperature regulator which provides "zone" control.

### NEW TRAY LIFTS

Other new or improved features include "ex-press" tray lifts on all ice cube trays, adjustable height shelves, adjust-o-shelves which slide in and out, and closely spaced grids on shelves to give improved footing for dishes and jars.

Food-saver dishes in "delphinium blue" provide storage for leftovers. A blue water server finds a convenient location on the foldaway shelf which can be tilted up against the side of the compartment, if desired, to make room for tall bottles.

### TEMPERATURE INDICATOR

In the Emperor and Aristocrat models the temperature indicator is mounted on the door. In other models it is built in the upper shelf just below the froster.

The new meat storage compartment has a cover for conserving moisture to preserve meats correctly. In addition to its service as a meat storage compartment it is so constructed that it also can be used as a defrosting tray.

Finished in white porcelain and trimmed in chromium, the "humidrawer" extends the entire width of the bottom of the food compartment. A transparent glass top serves as a bottom shelf for the food compart-

## 1938 Westinghouse Has Larger Evaporator



A larger evaporator, a glass-top humidrawer, external controls, and a number of new or improved convenience features distinguish the 1938 Westinghouse line of refrigerators, one model of which is shown here.

ment, and as a top for the humidrawer itself, so that the housewife can see just what fruits and vegetables she has stored in this compartment without having to pull out the drawer.

The new temperature regulator is in the form of a wheel-like dial located in the panel to the machine compartment, with the regulator on the top ledge of the panel. Each numbered temperature setting also gives, in smaller letters, the range of food compartment temperatures which that setting provides.

The complete 1938 Westinghouse line offers models ranging in capacity from 3.2 net cu. ft. in the HDS-3 model, to 20 cu. ft. capacity in the FP-200 model. Various divisions have been made in the new line to distinguish series of models having certain refinements and conveniences.

These divisions include the Emperor series consisting of three porcelain cabinets—9.5, 7.2, and 6.2 cu.

ft.—and having all the enumerated features; the Aristocrat series of four models—9.5, 7.2, 6.2, and 5.2 cu. ft.—identical with Emperor series except that exterior finish is in Dulux; the Patrician series consisting of three all-porcelain models—7.2, 6.2, and 5.2 cu. ft.—with new temperature regulator, fruit and vegetable compartments, and large froster; and the Hostess series of five models—7.2, 6.2, 5.2, 4.2, and 3.2 cu. ft.—with same styling and features of Patrician models but with Dulux finish.

The 1938 line also has a "five star special" series consisting of three models—7.2, 6.2, and 5.2 cu. ft.—with a limited number of the convenience features.

Additional models to meet special requirements are also in the new line. These include the 20-cu. ft. FP-200, the 13.5-cu. ft. FP-135 (both models with two froster and double storage compartments); and the compact 3-cu. ft. UG-30.

## Two New Westinghouse Features



(Top) The new covered meat storage compartment is located directly under the evaporator. Note also the temperature indicator on the door. (Below) A new kind of temperature regulator dial in a novel location is one of the Westinghouse features this year. Also seen in this picture is the glass-covered "humidrawer" in the bottom of the food compartment.



## CUSHION MOUNTING MOTORS

The quiet operation of Century Motors meets one of the most important requirements in residential and commercial installations—driving Fans, Blowers, Room Coolers, Oil Burners.

The design and careful mechanical balance reduces noise and vibration to a minimum. Yet—Cushion Mounting prevents what little vibration there is from being transmitted to the rest of the installation.

Interchangeable mounting dimensions are provided for all types of Cushion Mounted Century Motors, whether for Single Phase—Polyphase—or Direct Current.

CENTURY ELECTRIC COMPANY  
1806 Pine Street • • • St. Louis, Missouri  
Offices and Stocks in Principal Cities





## Department Store Association Planning Larger Survey Of Appliance Selling

NEW YORK CITY—In an effort to obtain complete factual information on all aspects of the problems of major electrical appliance merchandising in the department store field, the National Retail Dry Goods Association last week sent to 400 of its member stores a comprehensive questionnaire covering all important phases of major appliance operations, including two—installation and servicing—on which no general information has previously been assembled.

Designed to delve more deeply than ever before into the problems of major appliance merchandising as they apply to department stores, the survey covers, in addition to the two mentioned above, store policies regarding guarantees, home demonstrations, trade-ins, and sales and instalment terms; employee compensation practices; merchandising statistics; price lines and mark-ups; and general information on competitive and cooperative conditions in the stores' trading areas.

Appreciation of the importance of the appliance problem in the operations of department stores has prompted the survey, according to W. L. Walker, manager of the association's vendor relations bureau, who is directing the project.

### INTEREST IN APPLIANCES

Appliance merchandising is of current interest and importance to department store men, Mr. Walker said, because:

1. The impressive general advance of electrical appliance sales is adding to stores' interest in their selling and profit possibilities.

2. Despite these sales gains, reports of appliance departments for 1936 showed an average loss of 4.8%, according to Controllers' Congress figures.

3. There is increased conviction in the field that department stores represent a logical outlet for appliance distribution.

4. Cooperative friendly relations between the electric industry and the department store are gaining steadily.

First section of the survey, dealing with competitive and cooperative conditions in the different trade areas and the attitude of utility companies regarding them, asks also about distributors' merchandising practices, and whether the store's appliance operations on individual products are store-operated, leased, resale, or run as a tie-up with the utility.

### QUESTIONS ASKED

Attitude of the store regarding major appliance guarantees on both general and private brand merchandise is sought, together with its recommendations as to the maximum guarantee limit on each type of appliance.

Practice of the store on home demonstrations is covered in the same section of the survey, together with its views as to the advisability of continuing or quitting the procedure through cooperative agreements.

Information on trade-ins is also sought, this section of the questionnaire asking the estimated percentage of trade-in losses to trade-in allowances, as well as the manner in which trade-in merchandise is sold.

Second phase of the survey relates to instalment policies, asking for net sales of each appliance for the first half of 1937, as compared with 1936, with comparative figures on down payments, carrying charges, and length of contracts. Other questions ask for comparison with terms existing a year ago, and the minimum amount of sales the store will accept on time payment terms.

Merchandising statistics, including questions on cumulative mark-ups, mark-downs, stock shortages, gross margin, stock turnover, and other items, comparing the first half of 1937 with the same period of 1936, are covered in a section which seeks general information as to operating practices.

### SERVICING SPOTLIGHTED

The section on appliance servicing asks for a detailed breakdown on how service is performed for each type of appliance—whether by out-

side agencies (distributor, utility, service company), or by the store's own department.

Information is also asked as to whether the department made or lost money on servicing of appliances, and how the result was arrived at. Other questions cover details on store servicing policy, and methods of handling charges.

Delivery and installation policy is handled in the next section, which seeks to determine how these problems are handled, whether by the store or by an outside agency, and the cost of the service, for each type of appliance.

Section on costs, mark-ups, and related practices asks for a detailed report, broken down by trade names, on all appliances handled.

## ACMA Plans To Police Advertising Copy in Air Conditioning

(Concluded from Page 1, Column 3) executive vice president, announced last week at ACMA's annual convention here.

FTC specifications provide that equipment described by the phrase "air conditioning" must cool, dehumidify, and circulate air in summer and heat, humidify, and circulate air in winter. Cleaning of the air is advanced as a desirable factor in both instances.

Comfort, economy, and health were suggested as leading sales appeals for air conditioning. Regarding the factor of price resistance, P. Y. Danley, manager of Westinghouse's refrigeration and air-conditioning department, expressed the opinion that the public has a false conception of the cost of air conditioning. "Its actual cost is much lower than most people believe it is," he declared.

Despite the fact that most adver-

tising copy has stressed comfort and economy, J. J. Donovan, manager of the air-conditioning department of General Electric Co., cited health as being air conditioning's No. 1 appeal. He also emphasized the need for continuance of the educational trend in air-conditioning advertising by pointing out that it is the idea of air conditioning, rather than the product, which must be sold to the public.

Mr. Donovan also expressed the belief that application of the term "air conditioning" to such products as bread, hats, face cream, and gloves in reality has little harmful effect on the air-conditioning industry.

## Refrigerator Taxes Total \$752,954 in Sept.

WASHINGTON, D. C.—Excise tax collections totaling \$752,954.38 were made on mechanical refrigerators during September, according to a report of the Bureau of Internal Revenue. This is a twofold increase over the \$337,514.20 collected during September, 1936.

## Parker Rust-Proof Adds Building

DETROIT—Parker Rust-Proof Co. is building a two-story, fire-proof addition to its present quarters on E. Milwaukee Ave. here to provide a two-fold increase of office and laboratory facilities.

Part of the ground floor will house an enlarged testing and demonstration laboratory, equipped with modern precision instruments and other equipment and studying surfaces. A sheet metal shop and storage space for rust-proofing chemicals will occupy the rest of the floor.

Second floor will be devoted to the legal, engineering, filing, and accounting department offices and laboratories.

Parker chemists have succeeded in cutting the processing time in the rust-proofing operation from an hour or more to a matter of seconds, it is claimed, thus making it available for mass production in the automotive, refrigeration, air-conditioning, building equipment, and other industries.

# Here's NEW flexibility IN AIR CONDITIONING

One "Freon" air conditioning plant serves separate tenants; each tenant pays a proportionate share of operating cost.

Liquid refrigerant is successfully metered for first time.



THE Lincoln Theatre Building, Miami Beach, Florida, is an outstanding example of the flexibility of modern air conditioning.

The system includes three 40-ton Carrier Brunswick compressors using "Freon"® refrigerant. The liquid refrigerant is metered and sold on a unit basis. Operating costs are divided among the main individual tenant, the 1300-seat theatre, and the rest of the refrigeration load.

"Freon" refrigerants are used in most outstanding air conditioning installations throughout the country. "Freon" refrigerants are non-poisonous, non-flammable, non-explosive. They are odorless when mixed with

air up to 20% by volume. They have been tested by the U. S. Bureau of Mines, and meet all the specifications set by the Underwriters' Laboratories of Chicago in their recent report, "Standard for Commercial Refrigerating Systems" (Subject No. 207).

"Freon" refrigerants are used today in practically all mechanically cooled

railway trains, in factories and office buildings, restaurants, schools, hospitals and ships, in mines deep under the earth, in submarines, department stores, and homes—in every type of installation, large and small.

Be sure that your air conditioning system provides the maximum degree of safety. Specify "Freon" refrigerants.

\*"Freon" is Kinetic's registered trade mark for its fluorine refrigerants.



# FREON

REG. U. S. PAT. OFF.

safe refrigerants

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE



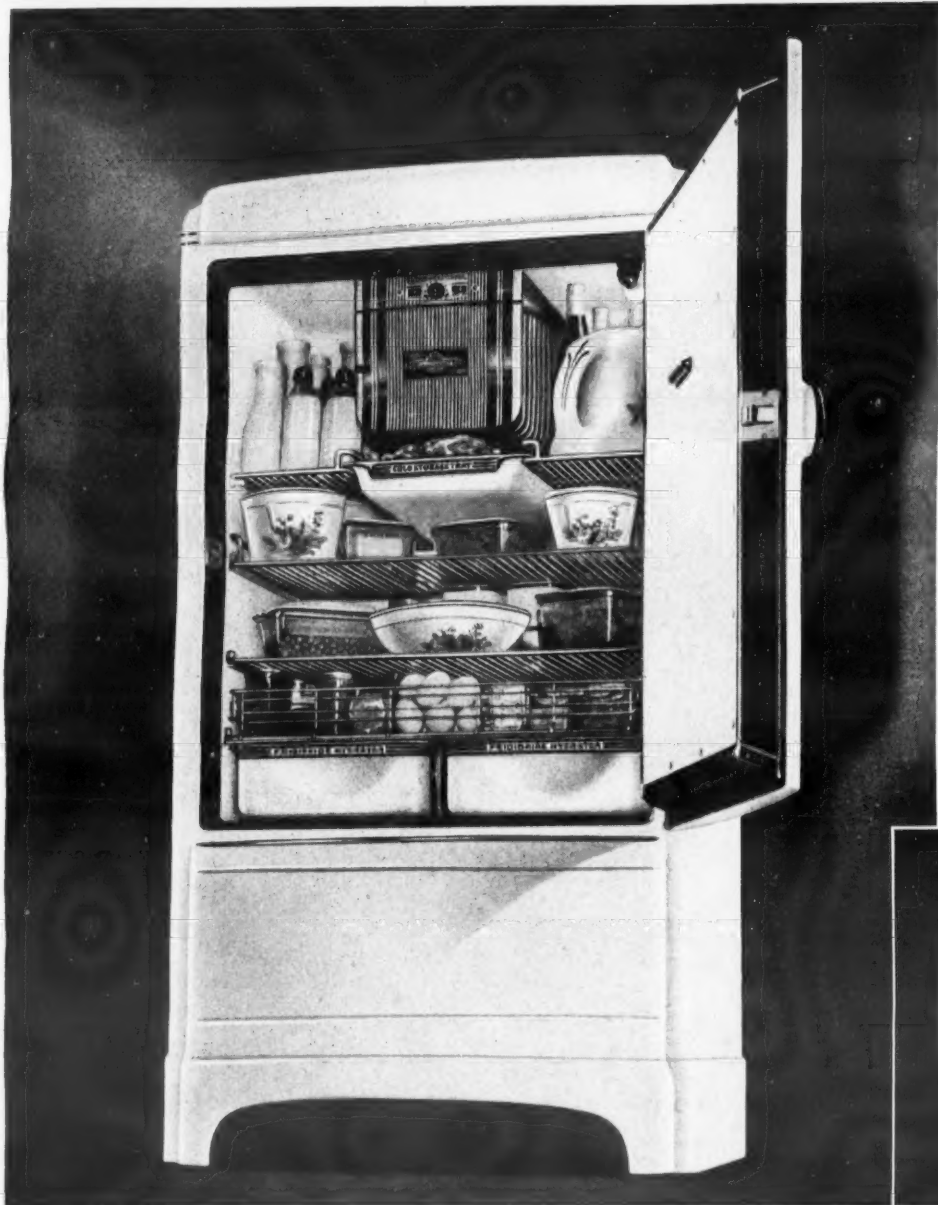


# FRIGIDAIRE WINS

## ... WITH THE BIGGEST

### 1938 FRIGIDAIRE WITH NEW SILENT METER-MISER OUT TO SET INDUSTRY'S FASTEST SELLING PACE!

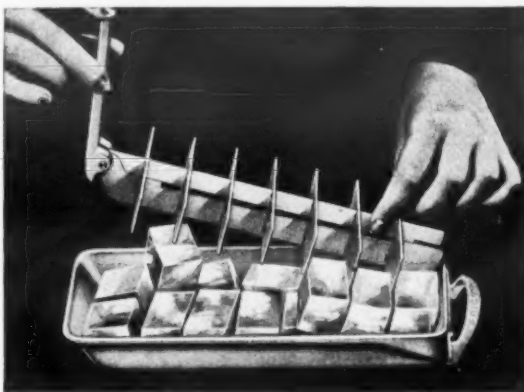
**AMERICA'S NEW ECONOMY SENSATION!**



#### NEW "DOUBLE-EASY" QUICKUBE TRAY

Only Frigidaire  
has this Improved  
Tray with so  
Many Sensational  
Selling Advantages!

The new "Double-Easy" Quickube Tray—another sweeping triumph for Frigidaire! For no other refrigerator offers Ice-Trays with these "double-easy" advantages. One! Come out of the freezer at a finger's touch. Two! Release ice-cubes instantly, 2 or a trayful at a time! A simple lift of a lever frees them—without work, or mess! And cubes are 20% bigger because wasteful melting under a faucet is eliminated!



And here's another sales point. Frigidaire's Quickube Trays are all-metal. They freeze ice faster, more solidly than trays made of any other material. Every tray, in every Frigidaire is a "Double-Easy" Quickube Tray. That's why Frigidaire Dealers are equipped to show proof that Frigidaire offers the greatest measure of ice-convenience ever known in refrigeration.

*Amazingly Improved New Models Save up to 25% More on Operating Cost Alone — Offer New and More Salable Features Galore!*

**Dealers Get Set for Another Record-Smashing Year!**

Again Frigidaire has packed years of progress into one — has left others further behind than ever! For Frigidaire now introduces the most economical — the most advanced — refrigerator in all its history, the new 1938 Frigidaire with the new Silent Meter-Miser!

Ready now for Frigidaire Dealers is this sensational refrigerator that not only slashes current cost to an all-time low, but saves amazingly more, also, on the cost of keeping food safe — on the cost of freezing ice — on upkeep cost! A refrigerator that, in addition to unprecedented economy, offers dozens of other spectacular advantages that will appeal to every refrigerator buyer — lead Frigidaire men to new and greater sales records!

#### A Host of Great New Features

The industry will marvel at the sales appeal built into the new 1938 Frigidaire! Marvel at the vast improvements in styling! New interior appointments! Advanced engineering features! For heading a list of brilliant, exclusive new Frigidaire developments is the new

#### NEW SILENT METER-MISER!

silent Meter-Miser, sensational in its economy and performance! And the new "Double-Easy" Quickube Tray that releases ice cubes quicker, easier than ever! Only Frigidaire has them!

The newly styled 9-Way Adjustable Interior with new, larger, Moisture-Seal Hydrators, finished in stainless porcelain, trimmed in chrome . . . the new porcelain-on-steel, chrome-trimmed Cold Storage Tray, and the new ovenware set of 3 covered dishes and 2-quart water jug . . . all combine to form a matched, ivory-colored interior ensemble that can't be beat for eye appeal!

New "Thermo-Sealed," all-steel cabinet with up to 23% more insulation of improved type! New, gleaming, chromium plated Super Freezer! New Close-Bar Sliding Shelves! A host of new features! Plus all the time-proved, self-selling Frigidaire exclusive features that have helped Frigidaire Dealers set sales records year after year!

#### New Powerful Sales Strategy

No wonder that, with this announcement, Frigidaire Dealers all across the land are off to an early start toward another record-breaking year! For the 1938 selling program is as sweepingly advanced as is the new Frigidaire. Sales strategy will pack more punch than ever! Advertising will be harder-hitting! Showroom material will be more impressive! Everything is set for another record-shattering Frigidaire year! And Frigidaire Dealers will profit!

#### Greatest Current Saver in Frigidaire History!

Headline news is Frigidaire's New Silent Meter-Miser! For it is so current-stingy, so efficient in its operation that it saves up to 25% more on operating cost than even the current-saving Frigidaire of 1937! Saves more, too, on food — on ice — on upkeep! The greatest all-around money-saver in Frigidaire history! It's the simplest cold-making mechanism ever built! Is automatically oiled and cooled, completely sealed against moisture, dirt — runs silently, trouble-free for years! Protected for 5 years against service expense.

#### Outstanding Sales Producer!

Watch the New Silent Meter-Miser help Frigidaire men again break all selling records! For it enables them to show Proof — more dramatically, more convincingly than ever — that Frigidaire is America's outstanding refrigerator buy! To give Proof of greater economy! Proof of greater dependability!

#### READY IN TIME FOR CHRISTMAS!

Now—for the first time—Frigidaire Dealers will have brand new year-ahead models to sell to Christmas buyers. How that will boost sales! For thousands more will decide to buy the new 1938 Frigidaire this holiday season instead of waiting longer. And Frigidaire Dealers will cash-in!

December issues of leading magazines will carry a 4-color full page advertisement announcing the new Frigidaire line! Frigidaire Dealers will make these advertisements their own by using specially prepared local advertising material, now available.



# THE HEADLINES AGAIN!

## NEWS IN THE APPLIANCE INDUSTRY

### FRIGIDAIRE DEALERS HAVE GREAT NEW LINE OF ELECTRIC RANGES, WATER HEATERS, HOME LAUNDRY EQUIPMENT!

#### NEW FRIGIDAIRE ELECTRIC RANGE

**Destined to Equal the Outstanding Sales Success of the Frigidaire Refrigerator! Has More Advanced Cooking and Baking Features than Any Other 2 Ranges Combined!**

Frigidaire now enters the field of electric cookery—with an electric range that is a sweeping advancement beyond anything now available! A range that offers—model for model—more advanced cooking and baking features than any other 2 ranges combined!

Painstakingly designed to unite in a single range the features voted most desirable in a nation wide survey of 7550 housewives, the new Frigidaire Electric Range is more practical and convenient to use than any other on the market! Its new Frigidaire-designed Chromolox "Speed-Heat" surface units, for instance, slash the time and cost of surface cookery... use  $\frac{1}{4}$  less current than conventional units on low heat! Its new "Even-Heat" Oven bakes with uniform, consistent results—with amazing speed!

It's the most dressed up, improved, complete and salable range package you have ever seen. What an opportunity it will give Frigidaire Dealers as it paves the way to a new era of electric range sales!

**First Range Ever Designed to Unite All These Important Advantages—in Every Model in Every Price Class!**

"Speed-Heat" Enclosed Cooking Units  
3 Cooking Speeds  
"Low-Low" Heat on Every Unit  
1-Piece Porcelain Cabinet  
1-Piece Stain-Resisting Top  
Silver Contact Switches  
Armored Wiring  
Utensil Storage Compartment  
"Even-Heat" Oven  
"Evenizer" Heat Distributor  
Smokeless Broiler  
Large Stainless Porcelain Oven  
Non-Tilt Sliding Shelves  
Shelf-Type Oven Door  
Front Opening Oven Vent  
Hydraulic Oven Heat Control

**PLUS All These Outstanding Features**—which are either standard equipment, or optional on most models:

"Thermizer" Cooker  
"Cook-Master" Control  
Cooking Top Lamp  
"Time-Signal"  
Condiment Set  
Warming Drawer

In every price class, in every model, the new Frigidaire Electric Range offers more outstanding features than the two next best ranges combined—yet will sell at prices substantially lower than the most nearly comparable makes. Never before have so many quality features been offered for the money.

#### 5 Models in New Frigidaire Electric Range Line

... Including a DeLuxe model, complete in every detail with no "extras" to buy, and priced sensationally low. Frigidaire dealers have a model in every price class. All of uniform high-quality, made of the best materials obtainable.

#### THE NEW FRIGIDAIRE WASHER



#### AMERICA'S NEW COOKING SENSATION!



#### SENSATIONAL NEW FRIGIDAIRE WASHER AND IRONER!

**Host of Outstanding Sales Features**

Frigidaire brings to the home laundry appliance field the new Frigidaire Electric Washer, and the equally-remarkable new Frigidaire Electric Ironer—feature for feature outstanding appliances in their fields! With countless new convenience advantages—and amazing new beauty of design—these two new Frigidaire appliances open up new profit opportunities to Frigidaire Dealers.

#### New Frigidaire Washer

Handsome, completely modern in style, the new Frigidaire Electric Washer has such advantages as an exclusive tap release wringer of improved

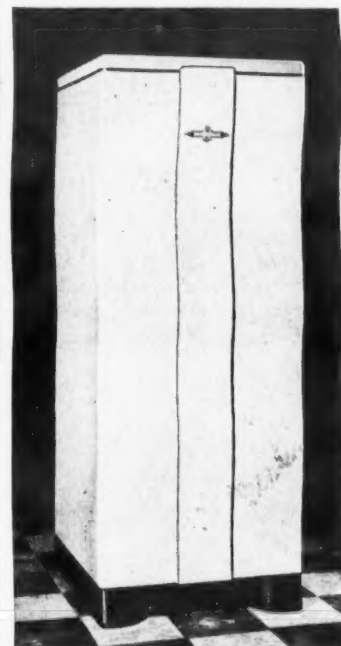
design... rounded bottom, glass-wool insulated tub, finished with lifetime porcelain... the new Frigidaire Saturator, specially-designed to wash clothes shades whiter... without wear... in less time! And all models can be quickly, easily converted to gasoline engines.

#### New Frigidaire Ironer

The new Frigidaire Electric Ironer is compactly-built, beautifully-styled, easy-to-use. Has many new convenience features.

Outstanding products in their field, these new appliances offer Frigidaire Dealers amazing profit opportunities.

#### NEW FRIGIDAIRE ELECTRIC WATER HEATER!



#### Remarkable New Addition to Frigidaire Line

Frigidaire announces one of the most efficient electric water heaters ever built! A water heater that will attract thousands of home-owners to automatic water heating, with its new economy of operation, features and price!

There's Frigidaire and General Motors quality built into every detail of this new Frigidaire Electric Water Heater. New, improved glass-wool insulation; new, more efficient type thermostat; and a new, improved type of heating unit—that heats water faster, at less current cost. And it is constructed for years of dependable operation!

The new Frigidaire Electric Water Heater is a companion worthy of the new Frigidaire Electric Range, Washer and Ironer—and the world-famous Frigidaire refrigerator! See it at your earliest opportunity! This sensational new low-cost heater will usher in a new era of electric water heater sales.

*You'll do better than ever with FRIGIDAIRE in 1938*

● Frigidaire now enters new fields! Leads the way to new and greater selling opportunities for all Frigidaire Dealers! For this outstanding, well-rounded line of new products—backed by the names of Frigidaire and General Motors—will make the Frigidaire franchise tremendously more valuable in 1938.

And to give Frigidaire Dealers a greater selling advantage, Frigidaire will put behind *each and every*

new Frigidaire appliance the same hard-hitting sales strategy that has characterized the promotion of the Frigidaire refrigerator—made it the largest-seller in the industry!

Frigidaire men are set to go again in 1938! To shatter refrigerator sales records again! And to hang-up new selling records in other appliance fields! They'll do better than ever with Frigidaire in 1938!





## Lower Operating Cost Is Claimed for 1938 Frigidaire Line; 'Quickube' Tray Improved Food Storage Arrangement Realigned

(Concluded from Page 1, Column 5) miser"; an advanced type of "quickube" ice tray, providing faster ice cube release than did last year's; and improved streamline cabinet design, embodying all-steel, one-piece, wrap-around cabinets and chassis.

Decision to bring out the 1938 line earlier than in the past is expected to work toward the benefit of the whole Frigidaire organization, E. G. Biechler, general manager, said. Among other things, he said, it will enable distributors and dealers to take advantage of the favorable Christmas buying season, and get a flying start on the new year.

Analyzing the reduction in operation costs claimed for the 1938

construction and assembly changes, which are said to add to overall efficiency. Freezer is now supported in such manner as to permit the use of thicker insulation in the top, with the further elimination of three bends in both liquid and suction refrigerant lines.

Readjustment of interior shelf location has been accomplished to provide more space between shelves, and more clearance in door opening for taller containers. More usable height and width in the food compartment interiors add to convenience in normal usage.

### SHELF BARS CLOSER

All shelf bars are placed closer together, to reduce the tendency on the part of narrow-bottom containers to tip. Stain resisting porcelain interiors continue as standard in all models. All insulation is completely sealed against moisture. New embossing on freezer doors adds to beauty of interior cabinet appearance, in addition to strengthening the door itself.

Chief place among the line's ice service features is granted to the new "quickube" tray, an outgrowth of the instant cube release brought out in the 1937 line. Fewer parts are used in this year's trays; the grid has been redesigned, and a longer, more sturdy release lever provided.

New freezer units are reshaped to allow more space below, increasing cubical space between the freezer proper and the cold storage tray, capacity of which is increased.

### HYDRATORS ENLARGED

Vegetable Hydrators have been increased in size in a number of models, and all Hydrators are equipped with new moisture-seal lids, which, it is said, will maintain moisture and freshness in vegetables for longer periods than formerly. In deluxe models, hydrators will be colored ivory to harmonize.

Hydrator handles are located at the top of the hydrator body, and are treated with chromium plating to add to the trim appearance of the cabinet interior. Food safety indicator, as in the past, is located on the outside of the door in all master and deluxe models.

The nine-way adjustable cabinet interior, featured in the company's 1937 models, has been retained as a dominant feature of the new line.

### DISHES WITH DELUXE MODELS

All deluxe models are equipped with a set of refrigerator dishes, a salad bowl and water server especially designed as an ensemble in ivory to match the hydrators and cold storage tray. Refrigerator dishes are of oven-ware type, and may be transferred from refrigerator to oven without danger of damage.

Refrigerant used in all models continues to be F-114.

## Utility Featured in Frigidaire Cabinet Arrangement



(Top) A "department store" within a refrigerator, Frigidaire calls this utility basket designed to hold all the small items that are hard to store. (Below) This full width sliding shelf in the 1938 Frigidaire comes out like a desk drawer, a patented latch keeps it from coming too far.

## Harper Elected Chairman Of Refrigeration Section Of Safety Council

KANSAS CITY—C. H. Harper, Southern United Ice Co., Jackson, Miss., was elected general chairman of the refrigeration section of the National Safety Council at the National Safety Congress held here.

John L. Speers, City Ice & Fuel Co., Cleveland, was named vice-chairman of the section, and Emerson A. Brandt, National Association of Ice Industries, secretary.

Other members of the section's executive committee are:

News letter editor: A. A. Rall, Kansas City Power & Light Co., Kansas City; engineering committee chairman: D. E. Woods, Central Power & Light Co., Corpus Christi, Tex.; health committee chairman: H. L. Lincoln, the Union Ice Co., San Francisco; membership committee chairman: Ray M. Seeker, Anheuser-Busch, Inc., St. Louis.

Program committee chairman: Ivan L. Scott, Bureau of Safety, Chicago; publicity committee chairman: L. C. Roberts, Kelvinator Corp., Detroit; statistics committee chairman: Herman Hillenbach, Knickerbocker Ice Co., New York City; visual education committee chairman: R. B. Oakley, Chicago Ice Producers Mutual Liability Co., Chicago.

Committee members-at-large are: T. A. Adams, Union Terminal Cold Storage Co., New York City; G. D. Allman, United States Cold Storage, Chicago; C. A. Brown, Cutler Ice Co., Binghamton, N. Y.; George B. Bright, George B. Bright Co., Detroit; L. W. Dawley, Southern United Ice Co., Jackson, Miss.; W. O. Ham, Southern Ice & Utilities Co., Dallas.

S. R. Kallins, C. Hoffberger Co., Baltimore; J. F. Nickerson, American Institute of Refrigeration, Chicago; W. M. O'Keefe, American Warehouseman's Association, Chicago; George Olmsted, City Ice Co., Kansas City; T. W. Rodes, Carbide & Carbon Chemicals Corp., Whiting, Ind.; H. D. Sanford, Peoples Ice Co., Syracuse, N. Y.; J. L. Shrode, Alco Valve Co., St. Louis; W. H. Senyard, Louisiana Power & Light Co., Algiers, La.; Harold M. Toombs, Armour & Co., Chicago, and M. J. Uline, M. J. Uline Co., Washington, D. C.

## Newill, Fors Named on S.A.E. Advisory Board

DAYTON—E. B. Newill, assistant general manager of the Frigidaire division of General Motors Corp., and A. R. Fors, works manager of Airtemp, Inc., have been elected to the advisory board of the Dayton-Columbus-Cincinnati section of the Society of Automotive Engineers.

## Topics Chosen for Merchandising Clinic at G-E

CLEVELAND—Topics chosen by speakers who will address General Electric Co.'s sixth annual merchandising clinic for department store executives, to be held at Nela Park here Nov. 8 and 9, indicate that discussions will touch upon practically every phase of appliance department management.

One session of the clinic will be devoted to a showing of G-E appliances in the company's new exposition hall. Here retailers will get their first glimpse of G-E's 1938 line.

Chairman of the clinic's discussion sessions will be F. C. Strodel, executive vice president in charge of home furnishings for L. Bamberger & Co., Newark. Mr. Strodel also will speak at the forum session on the subject "Better Relations Between Retailer and Manufacturer."

A list of clinic speakers and the topics they have chosen, follows:

H. O. Hope, manager of house furnishings, H. & S. Pogue Co., Cincinnati, "Our Appliance Department Is Profitable."

F. J. Gammister, appliance department manager, N. Snellenburg & Co., Philadelphia, "Managing the Appliance Department."

J. Ginsberg, manager of major appliance department, Abraham & Straus, Brooklyn, "How We Sell Labor Saving Appliances."

Roscoe R. Rau, secretary, National Retail Dry Goods Association, Washington, D. C., "How Successful Furniture Stores Are Building the Appliance Business."

Robert Johns, housewares buyer, Higbee Co., Cleveland, "Getting Your Share of the Small Appliance Business."

W. L. Stensgaard, W. L. Stensgaard & Associates, Chicago, "Displays that Sell."

C. C. Parlin, Curtis Publishing Co., "Advertising and the Consumer."

Harry Cleveland, general manager, W. W. Mertz Co., Torrington, Conn., "Getting Appliance Business in Small Town Markets."

Irving Fox, N.R.D.G.A. counsel, Washington, D. C., "Fair Trade Laws and Their Effect."

J. E. North, director of domestic sales, Cleveland Electric Illuminating Co., "Helping Retail Dealers Make More Sales."

## Miller to Direct G-E Household Sales

(Concluded from Page 1, Column 2) tion Co., later known as the Thompson-Sterling Co., Louisville, Ky., in 1927. This firm was state distributor for G-E household refrigerators.

In 1934 he became vice president and general manager of Electrical Housekeeping, Inc., Cleveland, and was transferred the next year to the Keystone Appliance Co., Harrisburg, Pa., as president and general manager. When the Keystone company merged with the G-E Supply Corp. in 1936, Mr. Miller opened the latter's Allentown branch.

O. D. Miller, district manager of appliance sales for G-E Supply Corp.'s Dallas branch, succeeds L. H. Miller as manager of the Allentown branch.

O. D. Miller has been engaged in the selling of G-E appliances in Dallas since 1934, serving successively as district manager of specialty appliance sales, president of Electric Household Appliances, Inc., and district appliance sales manager for the supply company.

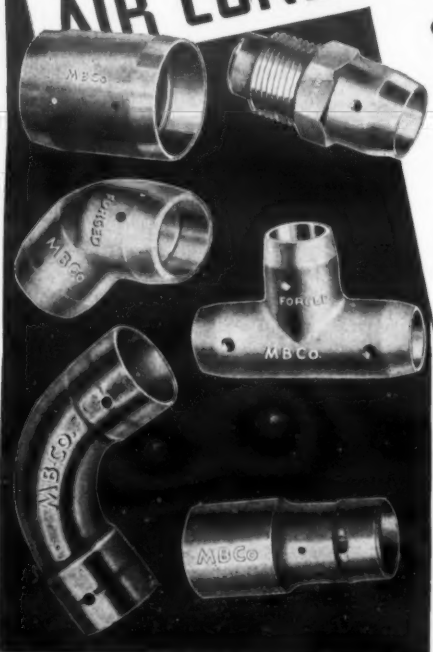
## Temprite Moves to New Factory Quarters

(Concluded from Page 1, Column 2) erty, and remodeled and redecorated the interior to fit its operating requirements. The company's moving operations were accomplished within a week, without interference with regular shipments. A reserve stock for this purpose had been built up before moving of machinery and equipment was undertaken. Regular production was resumed as soon as moving was completed.

First floor of the company's new location will house offices, laboratories, service and shipping facilities, and conference and display rooms. Manufacturing operations will be housed on the second floor; the third floor, now unused may be used later.

## TOP PERFORMANCE FITTINGS.

### FOR REFRIGERATION AND AIR CONDITIONING ★



● The use of STREAMLINE Solder Fittings assures permanently tight connections for electric refrigeration and air conditioning work. They are absolutely refrigerant and seep-proof. Vibration cannot work them loose. They form a connection actually stronger than the tubing—yet much lighter and more quickly completed, and they reduce materially your fitting cost.

Brass Forgings which have a tensile strength of approximately 60,000 pounds per square inch, are used in the manufacture of our flared tees, elbows, valve bodies, etc. Specially treated drawn brass rod is used for integral parts of valves, flare couplings, fitting caps, etc.

We manufacture the most complete line of valves, fittings (both flare and solder type) and accessories for mechanical refrigeration work. Send for catalog R-3 and Price List 2003.

**MUELLER BRASS CO.**  
PORT HURON, MICHIGAN

★ **STREAMLINE**  
COPPER PIPE AND SOLDER FITTINGS



## Cosgrove Describes Advantages Expected to Accrue from Early Introduction of 1938 Models

R. C. Cosgrove, Manager, Household Refrigeration Sales, Westinghouse Electric & Mfg. Co.

FOR the first time in merchandising electric refrigerators, this year will see a concerted effort on the part of all elements of the refrigerator business to announce new models to the public in the early winter rather than in the spring as has been the custom. This year, in November, many electric refrigerator manufacturers will show their 1938 models to the public.

This early announcement date of new models is of tremendous value not only to the production and distribution systems, and the allied businesses in general, but also to the purchaser.

### LIKE AUTO INDUSTRY

The marketing of electric refrigerators has long been similar to the problems encountered in the automobile and radio industries. Both of these industries have profited very materially through announcements prior to the normal season and the refrigerator industry should profit to at least as large an extent, if not more.

The benefits from the early announcement of electric refrigerators are spread equally between the customer, the dealer, the distributor and the manufacturer. Every agency concerned will be benefited in a large measure.

First, many consumers will make their purchases in the fall at the time of the new model showing rather than wait until spring. The necessity for adequate refrigeration is practically as great in the winter as it is in the summer, but the public has not yet accepted the fact. Mother Nature has given us only about 19 days in the entire year that temperatures are ideally suited for proper refrigeration, and added to this situation is the indisputable fact that "It's always summer in the kitchen."

Then, too, while it isn't as important a factor, refrigerators will be purchased for Christmas gifts in many a household that otherwise do without, because the purchaser can now be assured of a latest model, where heretofore purchases made before Christmas had to be of a model which was going to be superseded within a month or two.

Provisions for liberal financing over the winter months make it possible for the purchaser to have his

new model refrigerator over the winter with a minimum of cost and enjoy this very necessary and desirable convenience.

The retail salesman of the dealer under the previous announcement arrangement had a very irregular income. In the spring of the year his income was quite large, and in the fall it was very small, and as a consequence, it was necessary for him to add to his income from refrigerator sales by selling other devices, or in some instances, giving up entirely his refrigerator efforts for other work, and coming back to refrigeration again in the spring of the following year, out of step with the program and out of contact with prospective buyers whom he should have been cultivating along with his regular work during the fall months.

### MORE UNIFORM INCOME

The new announcement date makes it possible for the retail man to enjoy a more uniform income throughout the 12 months of the year to regulate his living on a more uniform basis and to concentrate all of his efforts on refrigeration, thereby becoming more efficient and more continuous in his successful effort.

The dealer, regardless of the size of his organization, is going to profit materially in offering new models in the fall rather than the following spring.

It will make a far more uniform operation for him. It will simplify his retail training program, and his retail sales crew will be more stable. He'll be able to keep substantially the same organization the year around with its increasing efficiency and decrease in cost of training and stimulation.

It will solve many of the dealer's financial problems because it won't be necessary to base his entire year's operation, or almost his year's operation, on a peak period in the spring. His warehousing and display program is simplified.

### SAVE PROMOTION COST

It will save the dealer considerable expense in the spring of getting started for the "big push" with costly promotion. He can make his effort more constant and continuous and therefore more effective. It will eliminate much of the confusion in the dealer advertising program and the continuity of advertising in other promotions.

Early announcements of the line will simplify his markdown problems and will probably shorten these markdowns very considerably.

If he has models on the selling floor before the subsequent year's models are announced, it will be much easier for him to dispose of a 1937 model, for instance, late in 1937, than it will be to dispose of a 1937 model early in 1938, because the 1937 model carries a lot of the current model ideas with it in the year in which it is identified.

## An Explanation of a Trend

It is no secret now that practically all manufacturers of household electric refrigerators are bringing out their 1938 lines earlier than ever before in the history of the industry.

R. C. Cosgrove, Westinghouse refrigeration sales manager, in the accompanying article offers his explanation of reasons why the manufacturers are making an apparently concerted effort to introduce their new models before Dec. 1.

The refrigerator distributor will benefit very considerably in the same relation as does the dealer, eliminating the peak problems, and making his warehousing situation simpler and less expensive. His financing problems are simplified tremendously.

### EXPENSES ADJUSTED

His operating expense can be better adjusted for a normal, even program than for the irregular program of the past. The distributor has more time to do an effective promotional and selling job on his own personnel and can maintain men in his organization with more satisfaction and with better results.

The manufacturer benefits, of course. He will be able to keep practically his entire factory and other organizations working on an equal basis the year around. Not only will his personnel be better trained and more happy with their income and other conditions, but the product will be better because it will be more uniform. The same supervision, inspection and workmanship which continuity of effort makes more productive and careful, will reflect itself

in better product, much less susceptible to defects and field adjustments.

### ADVANTAGES TO MAKERS

The manufacturer's warehousing problem is simplified too, because it isn't necessary for the manufacturer to provide large warehouse facilities to take care of enormous stocks in the winter, to provide for the peak of business in the spring, which is many times larger than his normal spring production.

Shipping problems during the peak periods have been a worry to the industry, and with a more uniform business will be greatly relieved. Shortages of certain models in the naturally large buying times of the year should be minimized.

This program of early announcement should benefit everybody, because it will make for more uniform distribution, and the problems of manufacturing, financing, advertising, promotion, and all the other factors involved in a successful business will be further simplified and improved, and everyone benefits, then we have an ideal situation and are making real progress.

Let me help you

# SELL

Refrigerators

## TO MILLIONS OF MY FRIENDS



### Leonard District Men Hear 1938 Advertising Plans

DETROIT—District managers for Leonard electric refrigerators met here Oct. 25 with R. I. Petrie, sales manager of the Leonard division of Nash-Kelvinator Corp., to discuss merchandising and advertising plans for the 1938 line.

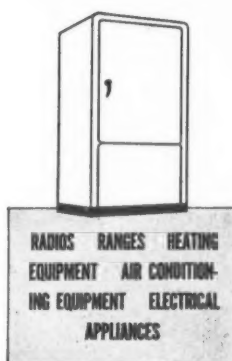
Preliminary proofs of a trade paper teaser advertising campaign which will start in November were shown to members of the Leonard field organization. Methods for obtaining proper dealer representation throughout the country were discussed.

Walter Jeffrey, advertising and sales promotion manager for Leonard, announced at the meeting that Leonard would use the largest advertising appropriation in its history during 1938.

### Earl Hadley Joins Agency Handling F-M Account

CHICAGO—Earl L. Hadley, formerly general advertising manager for Rudolph Wurlitzer Co., has joined Henri, Hurst & McDonald, Inc., as an account executive, it was announced last week. He will serve on the account of Fairbanks, Morse & Co.'s home appliance division.

Prior to his Wurlitzer connection, Mr. Hadley was advertising manager of Grigsby-Grunow Co., manufacturer of Majestic radios and refrigerators. His advertising background also includes nine years as advertising manager of the Cable Piano Co.



A good many million families in this country are friends of mine.

I have helped them acquire automobiles, refrigerators, heating equipment, washing machines, and many electrical appliances. Thousands of dealers

profited by my assistance in making these sales. You can profit by it, too.

When these same millions and other families come to buy refrigerators, they're going to think of me. If they find me working for you, you're going to find it easier to sell them.

Why? Because they know that the charge for my financing is fair . . . because my collection service has been courteous and considerate. I have their good-will. I know how to hold it for the dealers I work with.

I protect my dealers in other ways, too. I give them a smooth, non-irritating, thoroughly efficient credit investigating service. Since I'm a specialist in consumer credit I can usually spot those risks that might cause trouble and a loss of profit. I make prompt remittances, keep collections regular.

I'm the local manager of a Commercial Credit office in your territory. I can do a lot to help you. Let's talk it over.

## COMMERCIAL CREDIT COMPANY

COMMERCIAL BANKERS • HEADQUARTERS BALTIMORE  
CONSOLIDATED CAPITAL AND SURPLUS \$65,000,000



SERVING MANUFACTURERS, DISTRIBUTORS AND DEALERS THROUGH 193 OFFICES IN THE UNITED STATES AND CANADA



600



### MEET MRS. ANNABEL ALQUEST, OF KANSAS CITY, MO.

She is typical of the 600 women who, during the past summer, tested 1938 Leonard Refrigerators in *their homes*. These 600 homes are located all over the United States—in every state of the Union.

The owners of these 600 Leonards kept accurate records of the performance of their refrigerators. Records of their operating cost—daily recordings of kitchen temperatures and temperatures inside the cabinets. Service calls were also carefully noted. These records, now

in Detroit, prove two things—and prove them conclusively.

First that the 1938 Leonards are more efficient, more economical to operate, more usable and convenient than ever before.

Second that they will reach dealers ready to perform 100 percent: that they will operate under any conditions in the homes of users anywhere. Truly the 1938 Leonard will be a "Tried and proven refrigerator." Six hundred women have given it their stamp of approval.

1938 LEONARD



# LIKE HER WROTE THE 1938 LEONARD STORY!

**AND WE DO NOT BELIEVE THAT ANY MANUFACTURER  
IN THE REFRIGERATION FIELD HAS EVER HAD  
A SELLING STORY LIKE THIS TO TELL!**

It's about the 1938 Leonard—and it comes from forty-eight states throughout the Union—from 600 level-headed women in 600 typical American homes.

One of these 600 women is Mrs. Annabel Alquest of Kansas City, Missouri. Multiply what she told us about this marvelous new Leonard by the six hundred dots on the map and you'll get some idea of the "performance" story that Leonard will have in 1938.

And get this—you dealers who want the hottest, surest-fire line of refrigerators to sell! This 1938 Leonard, while it will be new to the field, is not new to us. It is the product of ten years of engineering research and laboratory tests. We believed it to be 100 percent right when we put it on the production line in the spring of 1937.

Now—as the result of a summer of tests in 600 actual

homes—we know that this 1938 Leonard is the most efficient, the most powerful and the most economical refrigerator that has ever been built. And that's a statement that packs real dynamite.

When you see the new Leonard you are going to have to admit that it's also the most beautiful, the most convenient and the most completely usable refrigerator you've ever laid your eyes on.

Leonard's 57 years of refrigerator building experience are summed up in this wonderful new product—and 600 women in 48 states have already given it their enthusiastic endorsement.

That's why we say that no electric refrigerator manufacturer has ever had a story like this to tell to a field organization—and no field organization has ever had such a selling story to tell to prospects.

**LEONARD**—Division of Nash-Kelvinator Corporation, Detroit, Michigan

*"Biggest Bargain in Refrigeration Today"*



## SPECIALTY SELLING IDEAS

### Law of Averages Plays Important Part in Selling Policies of Detroit Dealer

DETROIT—Hard work and strict attention to the law of averages are the two most important essentials in the successful selling of electric refrigerators and other household appliances, in the opinion of Alvin E. Alvey, formerly head of sales training for the Detroit Kelvinator branch, and now manager of his own dealership.

Following these two practices has enabled Alvey's to go considerably beyond its anticipated quota during its first year in business. The firm is located in the Curtis building, former location of Kelvinator's branch

headquarters, at Hamilton Ave. and Grand Blvd.

"Guided by a firm belief in the law of averages, we maintain a policy that utilizes all the methods of selling, believing that the more people you try to sell, using the many ways of selling, the more sales you actually will make," Mr. Alvey says. "The more times you come to bat, the more home runs you'll hit."

Personal contact is the most essential element involved in selling, Mr. Alvey believes, but he does not limit himself to this alone. In his current promotional efforts he is

running a daily advertisement in a neighborhood theater, besides doing some newspaper advertising. At the store he is giving away coupons with purchases toward a free refrigerator. He also runs food store displays and attaches much importance to effective window display.

As a man who has had much experience in salesman training, Mr. Alvey believes the prime requisite which the salesman must possess is a capacity for hard work. He picks his men by that criterion.

"I permit my salesmen a lot of freedom," he said. "I let them pick out their own clientele."

"If they're good salesmen they'll know the type of people with whom they work best. Some get along better with factory workers, other with professional men."

"But as with the general business of selling, the secret of a good salesman is usually nothing more remarkable than consistent application. It requires no more effort to sell a high priced unit than it does to sell a low one. The same formula of hard work must be applied in each case."

"Approximately 10% of our sales are cash," he stated. "I don't know whether that is a high or low percentage, but it is satisfactory for us. Our percentage of repossessions is at an absolute minimum. Credit is a matter of honor with most people, we find, and most people like to keep good credit standing. After all, it's to their own advantage."

"Despite all this talk about the evils of credit selling, we believe in it. It is the only means to volume selling. It's usually the dealer's own fault if he gets stuck on the sale of the individual unit. And it is the fault of all dealers as a whole if they won't get together and establish reasonable terms for the entire industry."

"Personally, we let our customers set their own terms, requiring a 20 or 30% down payment. The individual should be a pretty good judge of how much he can pay, and when."

As for the general trend of the refrigerator business, Mr. Alvey is optimistic. The replacement market, he believes, is just being touched and will act as an effective counterpoise to any possible dangers of saturation.

"I have no patent formula for successful selling," he remarked, "nor do I set rigid rules for any phases of my business. I try always to adapt my business to my customers. As for theories, I would say to anyone that the way to sell refrigerators—the only way—is to work like hell."

### 'Acquaintance Demonstrations' At Club Meetings Make Sales For Kansas City Dealer

KANSAS CITY — "Acquaintance demonstrations"—afternoon or evening meetings at which organizations rounding up their membership are paid 25 cents each for those attending—are proving a path to sales for the Great Western Appliance Co., appliance dealership here.

Those attending fill out a card for Manager J. Deck, listing their name and address and the make and age of appliances now in use in their homes. Included in the list are refrigerator, range, laundry equipment, radio, vacuum cleaner, and heating equipment.

Demonstrations, lasting from 30 to 35 minutes, cover all selling points of the appliances. No food is served, and no prizes are awarded for attendance. Usually from 25 to 45 women attend.

The meeting is just what its title implies—a "get-together." Mr. Deck wants those present to meet his salesmen. He asks that when his men call, the women answer the door, whether they are interested in a new appliance or not. Perhaps, he tells them, they will have a friend whose list of appliances is not as complete as their own.

As they leave the meeting, salesmen are available to point out the features of various appliances. As many as four sales have been made after such a meeting, although there is no "power" selling. Most of the sales are made on follow-up calls to the home. With the information on the appliances at hand, sales calls at the home are noticeably shorter and more direct, Mr. Deck finds.

Payment of the 25-cent fee to women's clubs arranging for group demonstrations is made out of the store's advertising appropriation.

### Refusal to Place Refrigerators on Trial Aids Sales for Fort Worth Dealer

FORT WORTH, Tex.—Systematic calls on users, and refusal to place refrigerators on trial in prospects' homes, are two of the chief factors that have materially aided refrigerator sales increases for the A. C. Rogers Co., Inc., Abe Kleinman, manager, reports.

"We find that one of the best ways of getting new prospect names is through users. Our salesmen try to call on at least five users every day," Mr. Kleinman said.

A good share of the company's sales are made through cold canvass, the manager said. Newspaper advertising, varied from time to time by "flash" copy on new carloads of merchandise, is used consistently.

The store's policy on demonstrations is that selling must be done, insofar as possible, on the floor or in the home—no boxes are placed out on trial.

"Demonstrations are too likely to lead to losses to competitors," the dealer pointed out. "Competitors find out when a refrigerator has been installed in a home on trial. A salesman from one company may work an hour selling the customer through a demonstration; then the competitor can step in, and without much effort, close the sale."

"Demonstrations also frequently supply material for competitors to use in tearing down arguments on the refrigerator you sell."

### 600 Homes Used as Testing Ground for New Leonards; 16 Users Awarded Prizes for Reports

DETROIT—Sixteen winners in a nation-wide contest, conducted in 600 homes throughout the country in the summer of 1937 to test the performance in the home of the 1938 Leonard refrigerator, and to learn the opinions of owners regarding the economy, convenience, and dependability of the new models, have been announced by R. I. Petrie, sales manager of the Leonard division of Nash-Kelvinator Corp.

First prize of a 1938 Nash-Lafayette automobile was awarded to Mrs. H. C. VanArsdale, of Philadelphia. Other prizes, consisting of substantial cash awards, were won by the following:

Mrs. Naomi Myers, Maroa, Ill.; Theodore H. Knobloch, Bloomfield, Ind.; Mrs. S. V. Beckwith, Jr., San Rafael, Calif.; J. R. Robinson, Buckeye, Ariz.; Mrs. A. Q. Smith, Charles-

ton, W. Va.; Frank Divilbliss, Zion, Ill.; Mrs. J. R. Robinson, Buffalo, I. J. Liggett, Goulds, Fla.; Dewey Brawner, Dallas; Mr. and Mrs. Earl Blumerich, Birmingham, Mich.; Vernon I. Cummins, Wichita, Kan.; Mrs. Frank P. Jordan, Scranton, Pa.; Mrs. A. Kramer, Pawtucket, R. I.; Wayne Wilson, Des Moines, Iowa, and Mrs. M. E. Ebert, Parkersburg, W. Va.

All of the 1938 Leonard models sent into the field for home testing were purchased by the owners from Leonard dealers. In addition to keeping accurate daily records of the temperatures in the kitchen and inside the refrigerator cabinet, the contestants also gave their opinions regarding the economy, convenience, and dependability of the refrigerators, and listed the 11 most important features according to their value, Mr. Petrie said.

### 40% of Rural Prospects Of Dealer Buy

PORTAGE, Wis.—While city prospects get full benefit of the house-to-house canvassing done by the Electric Home Appliance Co. here, rural prospects are the best sales bet, and the firm has sold appliances to 40% of those contacted in rural districts, L. J. Balthazer, owner, claims.

Electric lines are now being installed in the 30-mile rural territory the company covers. The area is too large to be canvassed regularly. To get around this difficulty, the company follows up only actual leads in rural territories. As many as 200 rural prospects are contacted each month.

In calling on farm prospects, an electric refrigerator and a washing machine are carried on a light truck driven by the salesman. The truck seldom comes back with its full load, says Mr. Balthazer. Sending the appliances right to the farmers' doors prevents lost sales to prospects who promise to "drop in to the store" and never do, he finds.

Although the population of Portage is approximately 6,300, about 70% of the sales come to Electric Home Appliance Co. from rural districts, which though harder to reach offer a field less competitive than the city.

Intensive sales campaigns made June and July best sales months this year. In 1936, June was high sales month; February was top month in 1935.

### Theater Promotion Plan Results in 4 Sales

SAVANNAH, Ga.—Running a film trailer on Leonard electric refrigerators at the local theater for two weeks and giving away free chances on a 1937 Leonard resulted in four sales for Clifford Goosby, dealer, and attracted approximately 1,000 persons to the show on drawing night.

The theater management cooperated with Mr. Goosby in running the movie trailer and in passing out the tickets. Although only a small part of the 1,000 who came to the theater on the night the contest ended could be admitted, many who had driven in from nearby places returned and waited outside for the drawing.

Over two dozen prospects who want to buy soon were secured by the promotion, Mr. Goosby says.

### Apex Divisions 'Play' In Territorial Grid Games

CLEVELAND—To stimulate fall sales, Apex Electrical Mfg. Co. is staging an "All-American Football Contest" for the four territorial divisions of its national sales organization. The contest extends through the regular football season, and each territory plays a "game" with each of the other three. Games are one month in duration each "quarter" being a week.

Winners are determined on a point system figured on a basis of factory quota against salesman's quota, the difference in percentage being used to compute points scored by each salesman. Team points for each game are derived by totaling all salesmen's percentages and dividing by the number of men on the squad.

Team with the highest percentage at the end of the season will be champion, and will be awarded a cash prize to be divided among its members. An additional award will go to the 11 salesmen in the league who make the most individual points. They will form the "Apex All-American" team and will be presented with individual engraved plaques and substantial checks.

### Well-Timed Follow-Up Calls On Users Bring Leads To New Prospects

KIRKLAND, Wash.—Psychologically timed follow-up calls to obtain new prospects constitute the "use the user" plan employed by the branch appliance store operated here by MacDougall & Southwick, Seattle department store, according to W. M. O'Patten, manager of the appliance outlet.

Mr. O'Patten believes that every appliance sale should result in at least two "live" leads. Most important feature of the plan, Mr. O'Patten says, is to make the call just 10 days after the appliance has been purchased. At this time, he reasons, the user is enjoying the new appliance to the utmost.

Salesmen, according to Mr. O'Patten, should not only find out the names of the customer's neighbors and whether or not they own electric refrigerators, but also should obtain any additional information about these families which might serve as ammunition for sales arguments.

**"Ho! Ho! SINK DUNKY!"**

**THAT METAL TRAY SURE GAVE YOU THE WORKS"**

**"YEH! THE WATER-WORKS"**

**THE ONLY ANSWER TO ICE CUBES AT THE REFRIGERATOR IS Flexible Rubber Trays**

When prospective refrigerator buyers ask *when* and *where* and *how* they will secure ice cubes from the refrigerator you sell... there is only *one* sales-clinching answer. It is—*instantly* at the refrigerator—with Flexible Rubber Trays. So let your salesmen demonstrate with Flexible Rubber Trays, how easy it is to have ice cubes *instantly*

right at the refrigerator—one or a dozen... full-sized, cold and dry... without tugging or twisting. Please your prospects... speed your sales... insist that the refrigerator you sell comes factory equipped with Flexible Rubber Trays.

INLAND MANUFACTURING DIVISION  
General Motors Corporation  
Dayton, Ohio



**ICE CUBES INSTANTLY—AT THE REFRIGERATOR**



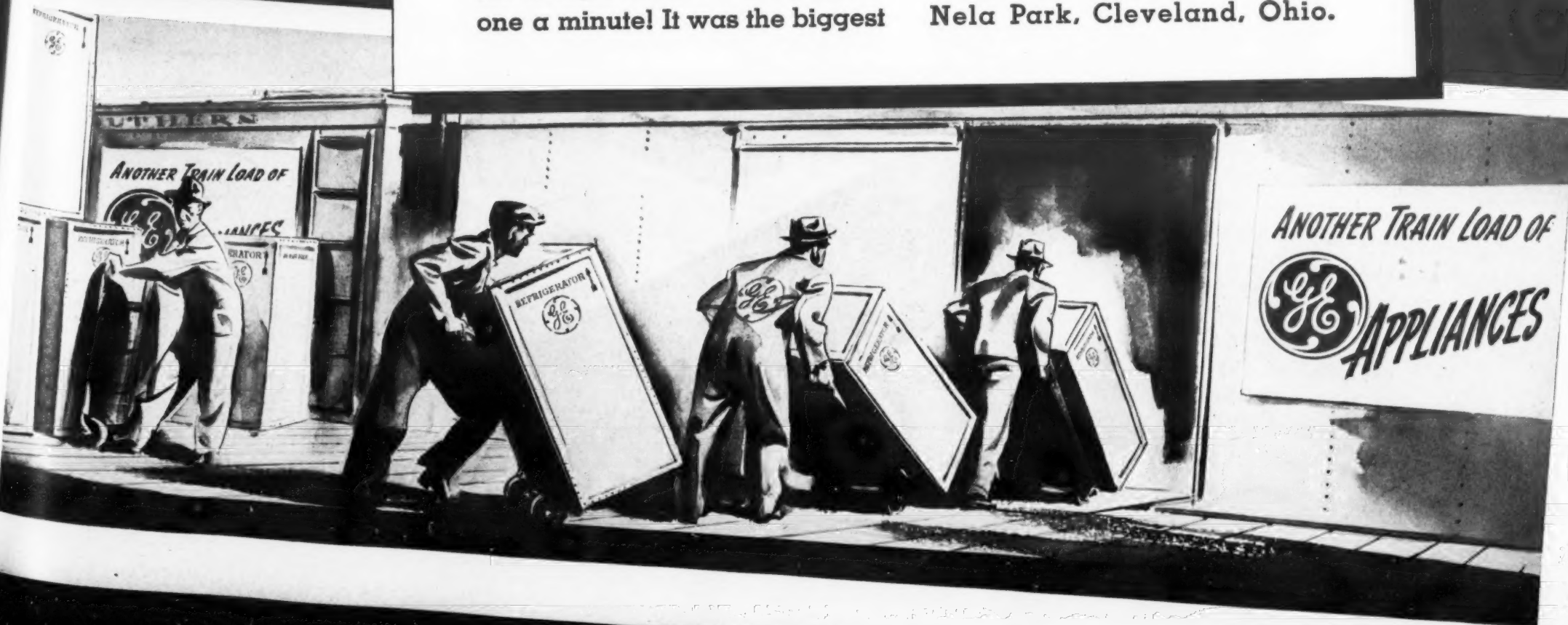
**"Boy it was!...  
AND 1938 WILL BE  
ANOTHER G-E YEAR!"**

**"1937 is going to be  
a G-E year!"**

## 50% MORE FACTORY CAPACITY

● The unprecedented swing to General Electric Triple-Thrift Refrigerators in 1937 was even beyond our expectations. America bought them at the rate of one a minute! It was the biggest

year in General Electric history! 1938 will be *another* G-E year and factory capacity has been increased 50%. General Electric Company, Appliance Division, Nela Park, Cleveland, Ohio.





## SELLING AIR CONDITIONING

### Detroit Airtemp Outlet Places Emphasis on Proper Personnel For Getting & Installing Jobs

DETROIT—"A budget? Well, we set up one when we first started out in this business, but we outgrew it almost before we got under way." In this way H. B. Orr, general manager of Airtemp Construction Corp., direct factory branch of Airtemp, Inc., Chrysler air-conditioning subsidiary, accounted for his company's lack of an active operating budget.

"You see," he elaborated, "when the company was formed at the beginning of this year, we decided to follow a carefully worked out budget based on an estimated gross income for the year. But we grew so fast that by June 1 we already had reached the volume which we previously had anticipated for the entire year's operation. Such an unexpected sales volume led naturally to considerable expansion of our organization, which in turn resulted in the shelving of our original operating budget. Since then we have been working largely on a 'pay as we go' basis."

Airtemp Construction Corp. maintains both wholesale and retail operations. It retails air-conditioning equipment only in metropolitan De-

troit, but sells it wholesale to 31 dealers scattered at strategic marketing centers throughout the state of Michigan.

Two dealer contact men and two field engineers comprise the company's wholesale staff. The contact men concentrate on lining up new dealers and on helping all dealers with their individual sales and organizational problems. These men are paid a straight salary with a certain percentage of override. The field engineers, whose job it is to personally supervise the installation work of all dealers as well as to serve in an advisory capacity to dealers on

all engineering questions, are paid a salary plus expenses.

The company's retail sales staff is split into two divisions—residential and general. The "general" classification covers all installations which cannot properly be listed as "residential."

#### FACTORY-SCHOOL TRAINING

Each of these two groups has its own sales manager. There are, at present, six salesmen in the residential division, and four in the general division. All of the general salesmen and two of the residential salesmen are college-trained engineers, and Mr. Orr said, "I don't think I would hire another salesman that hadn't had some college training."

Although most of the salesmen had had previous experience in air-conditioning sales, all were sent for a minimum of six weeks to a training school conducted at the Airtemp factory in Dayton. This training is supplemented by periodic meetings of the sales staff, called at the discretion of the sales managers.

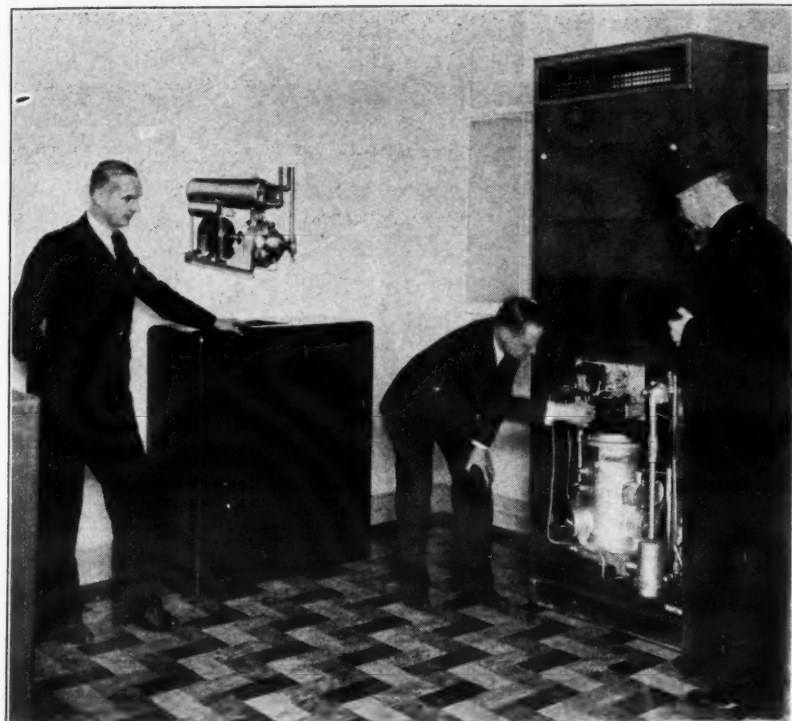
#### SALESMEN'S COMMISSIONS

Salesmen are paid on a commission basis and are allowed a drawing account, although Mr. Orr said that few of them need it. Commissions run from 2 to 12%, depending upon the size and type of installation.

"By paying our salesmen on this basis," Mr. Orr explained, "we feel that the men are rewarded according to their ability. A salesman who can't earn \$300 a month for himself under this system isn't worth keeping on the staff. If the men don't live up to certain standards we simply drop them. We can't afford to keep any but producers on our staff."

Each day salesmen are required to make out a detailed report of what

### Floor Demonstration Units Are Sales Aid



General Manager H. B. Orr, and Chief Engineer E. W. Gifford, of Airtemp Construction Corp., show Herbert Paetz, manager of American Blower Corp.'s sales office, some of the fine points of Airtemp's 3-ton self-contained unit.

fied customers," stated Mr. Orr. "We follow through closely on every job we install, and so keep our customers satisfied with their equipment. They, in turn, are usually willing to pass on to us the names of any prospects whom they happen to know."

"We also closely check the daily construction reports issued by the

most profitable. To date our radio program seems to have caused the most comment.

#### COOPERATIVE ADVERTISING

"All our advertising is done on a cooperative basis with Airtemp, Inc. in Dayton. This does not mean, however, that because we are a direct factory branch we are allowed any preferential price on our advertising. We operate in this respect just like any independent distributorship."

"The type of sales arguments which our men use," he continued, "depends entirely upon the type of job that they are trying to sell. On home owners the 'comfort' angle usually works well; on business firms we usually use the 'added profit' appeal. Most of our commercial installations are sold on the basis that the business man's return on his air-conditioning investment will more than equal the price of the job."

#### PAYS FOR ITSELF

"The average installation in the average business firm will pay its own way within two years, sometimes in an even shorter period. Then, too, we can always point out to the business man that inasmuch as most of his competitors have air conditioned their establishments, he really can't afford to be without conditioning."

"In all our sales work we stress the merits of our equipment and the ability of our engineering, construction, and service departments. We assure prospects that they will get the satisfaction and service to which they are entitled. In this way we attempt to convince them that an Airtemp installation, though not necessarily low in first cost, will prove most satisfactory and economical in the long run."

The efficient and profitable engineering. (Concluded on Page 13, Column 1)

### How Should An Air-Conditioning Dealer's Personnel Be Organized?

How many and what type of men should the personnel make-up of an air-conditioning sales and installation firm be in a metropolitan area?

How should the sales, engineering, and installation departments be organized to function properly, and just how should they operate?

These are questions that have, according to testimony from distributors and dealers, proved vexing to those who are selling and installing air-conditioning equipment. In this, the eighth of a series with air-conditioning firms in all parts of the country, is recounted the story of how the Airtemp Construction Corp. of Detroit is set up to get air-conditioning business in the Motor City.

It presents a slightly different slant from others in the series, because the company is a direct factory branch, but nevertheless, its organization should offer many points of interest to the independent distributor and dealer.

they have accomplished and of what they intend to do the following day.

The engineering staff of Airtemp Construction Corp., in addition to the two field engineers, includes a chief engineer, three residential engineers, three for general systems, and a corps of from two to 10 draftsmen. Mr. Orr asserted that it is impossible to obtain good air-conditioning draftsmen at ordinary draftsman wages, and that consequently his company has made a practice of training its own men.

#### SPLIT DRAFTING WORK

"The number of draftsmen needed varies considerably throughout the year," Mr. Orr explained, "and so we cooperate with the factory at Dayton in this problem. Draftsmen are shifted back and forth between here and the factory, depending upon where they are needed most."

The company's construction, installation, and service set-up is a little more complicated. This entire department is split into three divisions—layout, dispatch, and erection—each of which is in charge of a supervisor who, in turn, is responsible to the head of the department.

#### OTHER EMPLOYEES

Seven shop men and two shop draftsmen work in the layout department; under dispatch comes the stockroom man, truck delivery, one man who handles nothing but residential work, and another who is in charge of operations in the general classification; the erection division includes two residential supervisors, two general supervisors, and also the sheet metal, pipe fitting, and electric departments. Mr. Orr said that altogether about 10 men are engaged in service work.

"Most good prospects of Airtemp Construction Corp. come from satis-

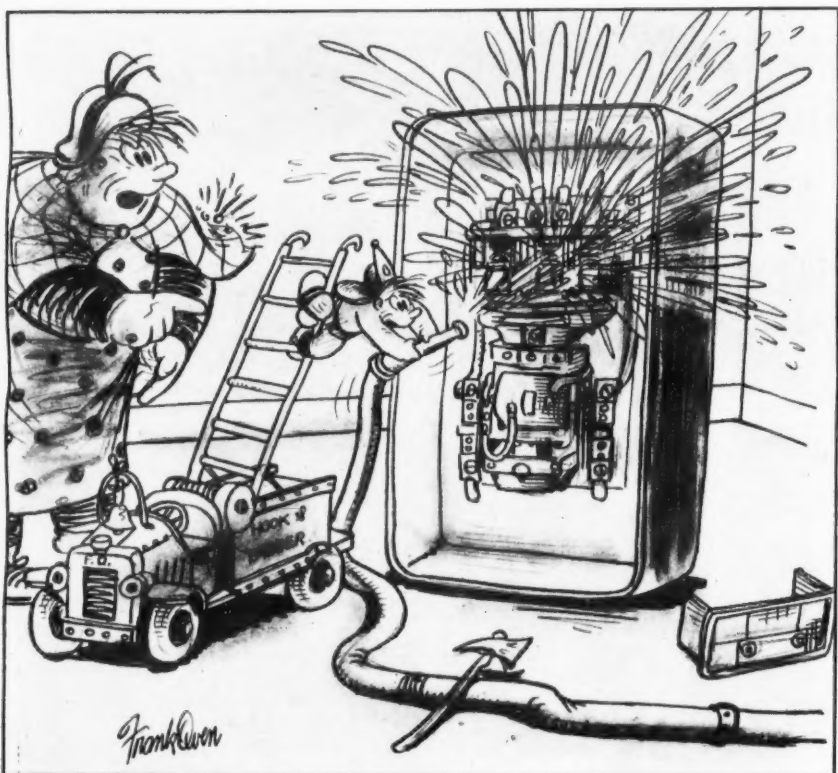
F. W. Dodge Corp., and maintain close contact with local architects and engineers. To determine direct-mail prospects, careful market analyses are made. These then are broken down into their various classifications. All direct-mail pieces are followed by personal calls."

Direct-mail, daily newspaper, realty trade paper, and radio advertising have been used by the company so far. "This year we are really just experimenting with various forms of advertising," Mr. Orr said, "in an attempt to discover which type is

### Airtemp of Detroit Makes Its Own Ducts



Sheet metal shop of Airtemp Construction Corp., where the company fabricates the sheet metal work for most of its installations. H. B. Orr, general manager of Airtemp Construction Corp., is at extreme left.



### "Stop, Philbert! There isn't any fire up there!"

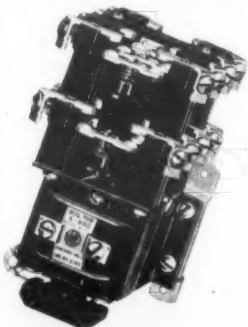
This is one on Philbert—he didn't know this was an Allen-Bradley solenoid starter which doesn't flash and throw sparks. In this starter, arcs that form are immediately extinguished. Then too, the double break, silver alloy contacts never need maintenance. There are fewer moving and wearing parts to cause trouble. The efficient solenoid magnet has a low drop-out and pick-up voltage, so that even when line voltage conditions are bad, the contacts close tightly and remain closed. The simple, rugged construction assures long life.

Allen-Bradley offers a complete line of motor control for air conditioning and refrigeration equipment. Write for "The Story of the Solenoid Starter." Allen-Bradley Co., 1313 S. First St., Milwaukee.



## ALLEN-BRADLEY SOLENOID MOTOR CONTROL

### BULLETIN 700 Solenoid Relays



Since they were brought out, these relays have established a reputation for ruggedness, dependability, and long life. Now, new refinements have been incorporated. Yet they still utilize the basic design features through which they won their reputation. Over 300 types.



## Orr Believes Preliminary Engineering on Air-Conditioning Jobs Should Be Done By Impartial Consultant

(Concluded from Page 12, Column 5)

neering of air-conditioning jobs has proved a problem to Airtemp Construction Corp. just as it has to most air-conditioning dealers and distributors throughout the country. The difficulty is, of course, that the company only gets a comparatively small percentage of the jobs for which it is called upon to furnish completely engineered estimates.

### ENGINEERING BUREAU

"We try to qualify our jobs as much as possible before actually engineering them," Mr. Orr explained, "but even then it is a wasteful way of doing business. I personally am highly in favor of having the engineering work on any competitive job done by an impartial consulting engineer or some sort of central engineering bureau. Such an arrangement might be cooperatively financed by all organizations which use its services."

Airtemp Construction Corp. does all of its own installation work on residential jobs, and a good deal of it on the others. On many of the larger commercial jobs, however, the sheet metal, plumbing, and electrical work is sublet. In such instances the cost of this work is lumped with the general contract, and the mark-up is figured on the total cost of the contract. All sublet jobs are supervised by representatives of the company.

### 30 TO 50% MARK-UP

The company's mark-up on air-conditioning installations varies from 30 to 50%, according to Mr. Orr. Principal factors in determination of the mark-up are size and type of installation. Occasionally on extremely large jobs, the mark-up drops below 35% Mr. Orr admitted, but he maintained that it takes a very attractive job to pull it down below that point.

The company places no definite statement regarding free service in its contracts unless it is specifically requested to do so.

### SERVICE PROTECTION

"We have done it, of course," Mr. Orr explained, "but not unless we had to. We don't believe it is a good policy, but when we're forced to meet that kind of competition there's no way of avoiding it. In instances when we do agree to free service (the period is never more than a year) we naturally have to protect ourselves by adding a service reserve to the price of the installation. The amount of this reserve varies from 2 to 6% of the total cost of the installation, depending again upon the size and type of job."

Any type of installation will be made on a time-payment basis if necessary, though naturally the company likes to get as many cash jobs as possible. The amount of down payment is variable, depending not only upon the cost of the installation but also upon the credit standing of the individual or concern. In no case, however, does the down payment drop below 20%. In general it operates on a sliding scale, with the percentage of down-payment increasing as the cost of the job decreases. Maximum time limit allowed is 24 months, with 12 to 18 months preferred. All financing is handled through Commercial Credit Co.

### TIME PAYMENTS FOR DEALERS

Dealers may purchase either stock or display equipment on a time basis if they so desire. These deals also can be financed through Commercial Credit Co., but it has been Mr. Orr's experience that most dealers prefer to handle and deal through their own banks.

Occasionally the company is called upon to bid on some unusual or "freak" installation, but Mr. Orr believes such jobs to be "interesting but unprofitable." "Their only value to the company lies in the publicity which they receive," he said. "Whenever we are asked to bid on any such job, we simply turn the whole matter over to the Airtemp, Inc., engineering department or laboratory, and then follow their advice about handling it."

Speaking of air conditioning in general, Mr. Orr declared that "people are beginning to appreciate the cost of air conditioning, but they still

haven't learned to appreciate what really good air conditioning is. Too many air-conditioning firms are so anxious to get business that they will sell a customer a job entirely inadequate for the work which it must do. The inevitable result of such poor salesmanship is a good many unsatisfied air-conditioning customers, who are soured on air conditioning of any kind.

"This situation is worse in Detroit," he said, "than in any other city with which I am familiar. In fact, many of the earlier jobs installed here wouldn't even pass inspection in many other large cities of the country. This condition is fast correcting itself, however, due to educational cooperation on the part of the major air-conditioning companies."

## Nash Conditioned Air System for Winter Driving Circulates Heated and Filtered Fresh Air From Which Moisture Has Been 'Spun'

KENOSHA, Wis.—Both comfort and safety features are claimed for the conditioned air system for winter driving which the Nash Motors division of Nash-Kelvinator Corp. is introducing in its 1938 automobile models.

The system, which, the company claims, "enables you to drive in your shirt-sleeves when it's zero outside," consists of a unit containing an air filter, a motor-driven fan, and a hot water heating element. This assembly is mounted under the cowl, and is connected with the cowl ventilator by means of a "stack" arrangement, which is completely out of sight.

Within the "stack" is a chamber in which the air is "spun" by its own pressure. This action removes the greater part of the moisture that is in the air, if wet weather prevails outside.

When the system is in operation, air is forced in through the cowl ventilator at a rate dependent upon car speed, but also controllable through adjustment of the ventilator.

After the moisture has been "spun" out and carried off through a special vent pipe, the air is introduced into the conditioning unit through the filter, which cleans it. From the filter, the air travels under pressure past the motor-driven fan, through the hot water heating element, and out into the interior of the car.

The fan is there to maintain the flow of cleaned, warm air into the car when it is standing still or traveling at a slow rate of speed. It also serves to keep air pressure constant when the automobile is traveling at high speeds.

Chilling drafts, heretofore common to winter driving, are eliminated,

say Nash engineers, because the system builds up within the car an air pressure greater than that outside, but a pressure not noticeable as far as occupants of the car are concerned. Passage of the air is at all times outward, even though doors and windows are tightly closed.


The system is said to be so efficient that a whole carload of passengers can smoke at one time, and the smoke and tobacco odor will be carried away almost instantly. This, it is explained, is due to the fact that cleaned, warm air enters the car interior at a rapid rate, and therefore must find its way out of the car at virtually that rate to make way for new air.

Rate of air intake at 30 miles an hour, engineers say, is 300 c.f.m.


Safety factors claimed for the conditioned air system are: (1) rapid change of air keeps the car interior fresh and free from contamination by monoxide fumes, a cause of drowsiness resulting in many winter accidents; (2) elimination of window and windshield fogging provides perfect driving vision, a further safeguard against accidents.

Mr. Dealer . . .

You are cordially invited to attend a showing of A-P Refrigeration Expansion and Solenoid Valves now being held at the Progressive Supply Jobber of Your City.

 Refrigeration Valves now on display embody many unusual features in construction and operation that we are sure you will find profitable in your own work.

Automatic Products Company


dealers are going to the jobber  
for  controls . . . .

Dealers and Refrigeration Service Engineers—men responsible for efficient installation and operation of Air Conditioning and Refrigeration everywhere—have proved in every instance that A-P Controls are designed and built for *their* benefit. They have found that A-P Refrigeration Expansion Valves and Solenoids are built right, can be depended upon for accurate and trouble-free service.

This enthusiasm and praise from the men in the field is vividly reflected in many interesting comments from some of the country's leading Jobbers. We quote a few:

- "I have always found A-P Products Economical, Durable, and Accurate."
- "The Sale of A-P Products brings Satisfied Customers."
- "We find A-P Valves are meeting with great popularity because of their Perfect Work."
- "A-P Products stay sold, are free from service, and performance has not been compromised by price."
- "Our clients are always completely satisfied when we use A-P Valves."

This type of satisfaction explains why Dealers are *Asking* for A-P Controls from their Jobber. It's "demand" that calls for "Supply." That's why you'll find the leading Jobbers everywhere stocking A-P Controls for Refrigeration and Air Conditioning. Supply Jobbers take pride in recommending only the best of every type of product. A-P is gratified to be included in that category—proud of this recognition given to long established precision standards of design and manufacture.

Progressive Jobbers Everywhere Stock  Controls



AUTOMATIC  
2450 NORTH  
MILWAUKEE

PRODUCTS  
THIRTY — SECOND  
MILWAUKEE

COMPANY  
STREET  
WISCONSIN



## Langsenkamp Co. Uses Trailer for Showing Samples to Prospects

INDIANAPOLIS — Completely equipped with a full line of refrigeration parts and supplies, a specially designed automobile trailer is now being used by F. H. Langsenkamp Co., refrigeration and air-conditioning parts and supplies jobber, to take samples from its local and South Bend branches to prospective customers.

The display coach aids in the selection of products, saves time, and provides customers with the opportunity to have the articles tested before buying, explains F. H. Langsenkamp.

## Roth Visits Midwest Supply Companies

LOS ANGELES—L. P. Roth of Refrigeration Service, Inc., distributor of refrigeration supplies and accessories, left here Oct. 10 on a rather roundabout trip which was scheduled to land him in Chicago in time for the annual convention of Refrigeration Service Engineers Society, Nov. 3-5.

Mr. Roth's itinerary took him first to Evansville, Ind., to call on the Servel organization; then to Dayton Rubber Mfg. Co., Dayton; Ranco, Inc., Columbus, Ohio; Kerotest Mfg. Co. at Pittsburgh; McIntyre Connector Co., Newark; and to New York City and Toronto, Ontario, where he visited friends.

At Detroit, Mr. Roth stopped in to see officials of Detroit Lubricator Co. and Wolverine Tube Co., and then proceeded to Tecumseh, Mich., to visit Tecumseh Products Co. From Tecumseh he finally went to Chicago.

## Illinois Service Men Elect Officers

JOLIET, Ill.—Officers for the balance of the year were elected by the Tri-County chapter of the Refrigeration Service Engineers Society at a meeting held recently in the Woodruff hotel here.

The officers are: Harvey Burgess, president; Kenneth Pentz, vice president; B. V. Clark, secretary; William Metcalf, treasurer; Clark Fenney, sergeant-at-arms; Al Davis, Eugene White, and Paul Seifrid, board of directors.

Willis Stafford presided over the meeting as temporary chairman.

## Ultra-Violet Rays Used In Leak Detector

(Concluded from Page 1, Column 1) is not known whether or not it would be practicable to use such a method for detecting refrigerating leaks in the field.

According to the description in the patent, any leaks in the system will show up as a bright fluorescence similar to firefly light. The invisible light used to detect the leaks consists of ultra-violet rays. It has been well-established that various substances, like petroleum and mineral oil, glow when ultra-violet light is thrown on them.

So will the oil that is miscible with the refrigerant that flows through the system. Thus, it is the peculiar fluorescent reaction given off under the action of the ultra-violet rays which gives the clue to leaks.

In carrying out the tests the refrigerating unit is placed in a specially designed light-proof room. All the lights are turned out so that the room is absolutely dark.

Through a window which lets no visible light through, ultra-violet rays are focused from a lamp directly onto the unit which is set in operation.

## Hendrickson Organizes Own Firm in Omaha

CHICAGO—R. L. Hendrickson, for the past four years chief engineer of Utilities Engineering Institute, and chairman of the educational committee for the Chicago chapter of Refrigeration Service Engineers Society, has resigned these positions to establish his own business in Omaha.

In addition to his work as service engineer for refrigeration and air-conditioning equipment, Mr. Hendrickson will do consulting engineering work.

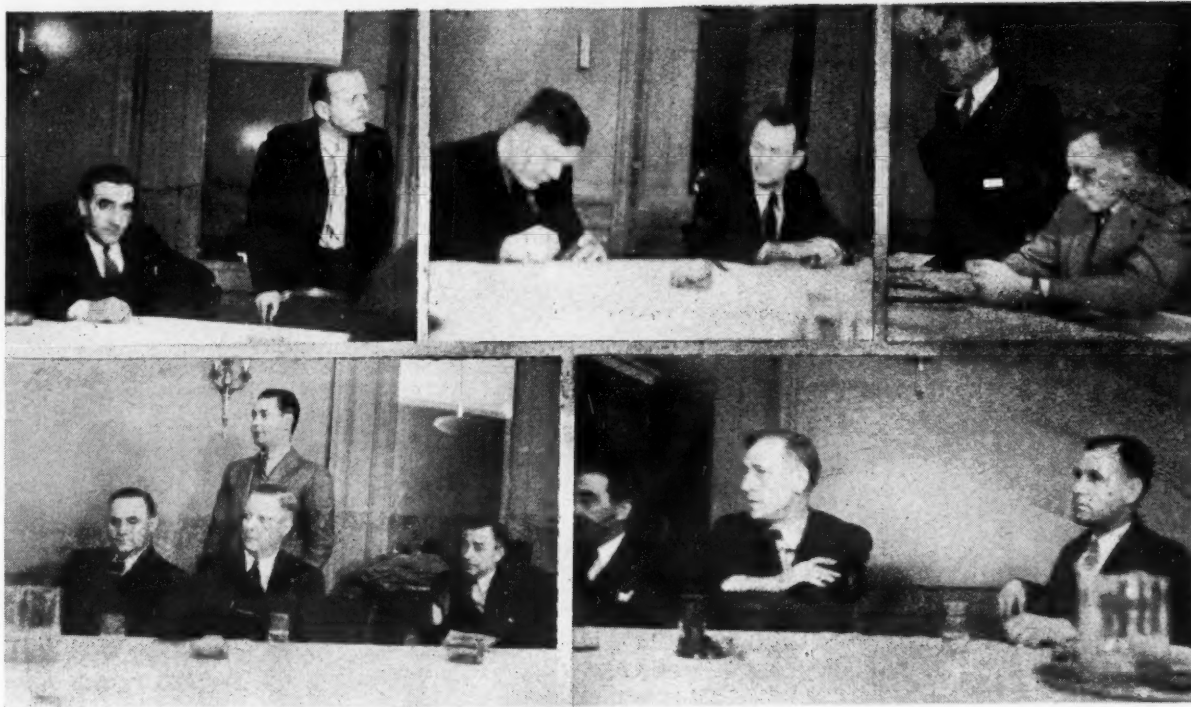
Mr. Hendrickson entered the refrigeration field with Servel, Inc., on the Pacific Coast in 1924.

## Kerr Will Manage Service For Warren Norge Co.

NEW YORK CITY—George Kerr has been appointed service manager of the Warren Norge Co., Inc., distributor of Norge appliances in the New York City territory. He succeeds Hugh Walters, who has resigned.

Jack McGorty, formerly chief service dispatcher, has been named assistant service manager of the company.

## R.S.E.S. Convention Committee at Its Final Meeting



Members of the convention committee for the annual meeting of the Refrigeration Service Engineers Society are pictured in action at their final meeting. Irving Alter of The Harry Alter Co., parts jobber, was the candid cameraman who took these pictures. (Top left) George Monjian of Chicago Refrigeration Service Co. looks right into the camera as B. B. Dawes of the H. Channon Co. discusses program plans. (Top center)

George Franek of Imperial Brass Mfg. Co. makes some notes while Ray Polley, head of the refrigeration division of Mills Novelty Co., looks on. (Top right) Herman Goldberg of the Herman Goldberg Co., general chairman of the committee, tells the committee that everything is in readiness, as Willis Stafford of the Willis Stafford Refrigeration Service, committee secretary, gets it down in writing. (Bottom left) Ray Johnson of Borg

Warner Service Parts Co. (standing) tells how the parts jobbers are planning to cooperate. Seated in front of him are William Hauber of Automatic Heating & Cooling Supply Co., H. W. Blythe, the H. W. Blythe Co., and Fred Roth of the All Makes Refrigeration Service Co. (Bottom right) George Monjian; Harry Drownes of Drownes Refrigeration Service Co.; and Percy Bossett lend an attentive ear as final plans are outlined.

## Standard Work Ticket for Service Job Is Offered

BROCKTON, Mass.—Work tickets for use by refrigeration service men in keeping accurate records of individual jobs, as well as convenient means of billing customers, recently have been made available for general use by Ewell Print, printing company here, through cooperation, of Bates Specialty Co., Brockton service concern which originated the form.

The tickets provide space for listing the various service jobs performed, recording mileage and parts totals. Individual parts are itemized on the back of the form.

## Service Engineers Meet At Davenport, Ia.

DAVENPORT, Iowa—At a meeting of the Mississippi Valley Chapter No. 1 of the Refrigeration Service Engineers Society held in the Davenport hotel here recently, H. T. McDermott, national secretary, spoke about the society's fourth annual convention and exhibit to be staged Nov. 3, 4, and 5 in Chicago.

R. Douglas Marshall, representative of Automatic Products Co., Milwaukee, also addressed the assembly, which included about 65 refrigeration service men from Cedar Rapids, Dubuque, and Burlington, Iowa, and Galesburg, Sterling, Monmouth, and Kewanee, Illinois.

## Toronto Contractor Given Award

LOS ANGELES—George W. Patterson, president of Patterson Electric, Ltd., of Toronto, has been awarded the James H. McGraw contractors-dealers medal for 1937 in recognition of his leadership in promoting higher standards of estimating by creating a guiding manual and monthly service of labor units for electrical construction from National Electrical Contractors Association cost data.

Presentation of the award was to be made at the annual banquet of NECA here Oct. 20.

Committee of judges which awarded the medal to Mr. Patterson consisted of: E. G. May, Albany, N. Y.; Howard L. Miller, president of Utilities Engineering Co., Philadelphia; S. J. O'Brien, president of S. J. O'Brien, Inc., New York City; and J. Roland Stolzenbach of Roland Electrical Co., Baltimore.

## Utilities Engineering Adds 3 to Staff

CHICAGO—Three new men—W. H. Hoehne, Walter W. Voss, and P. B. Ford—have been added to the staff of Utilities Engineering Institute.

Mr. Hoehne, formerly Pacific coast manager for McCall Corp., publishing firm, has been named vice president in charge of sales for the

institute. He has had 25 years of executive-sales experience.

Mr. Voss has assumed a position as one of the institute's instructors. He received his engineering training at the University of Chicago and Armour Institute, and gained several years of refrigeration and air-conditioning experience while working for R. Cooper Jr., Inc., General Electric distributor. For the past few years he has held an engineering position in the local office of Minneapolis-Honeywell Regulator Co.

Mr. Ford's previous experience includes five years as chief refrigeration instructor at Greer College, and a period of association with Welsbach Co., during which time he was in charge of training service men.

## Station KDKA Celebrates 17th Anniversary

PITTSBURGH—Seventeenth anniversary of Westinghouse Electric & Mfg. Co.'s radio station KDKA, first station in the world to broadcast regular radio programs, was celebrated Oct. 30 in ceremonies participated in by Lenox R. Lohr, president of National Broadcasting Co.; A. W. Robertson, chairman of the board of Westinghouse; Dr. Frank Conrad, Westinghouse assistant chief engineer; W. C. Evans, manager of the Westinghouse radio division.

KDKA's new 718-ft. antenna located at nearby Saxonbury was formally put in operation during the anniversary ceremonies.

THE **HILL** **ALL-PORCELAIN** *Reach-In* **REFRIGERATOR** IS

*Better* **ALL THE WAY THROUGH**

All-porcelain outside, all-porcelain inside, waterproofed sheet corkboard insulation, extra insulating board, hard rubber jambs, accessible coil chambers, take-down construction, special chromium-plated hardware—make the HILL Refrigerator better and easier to sell.

Send for 26-page catalog and discounts... using your business letterhead.

**C. V. HILL & CO., INC.**  
HILL Products Division  
Trenton, New Jersey

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

No. 1 of a Series of Curtis Advanced Engineering Features.

## TIMKEN TAPERED ROLLER MAIN BEARINGS

Increase efficiency—thermal and mechanical due to less friction.  
Take end thrust due to crankcase and seal spring pressure.  
Insure longer life.  
Provide for adjustment when needed (at such time plain bearings need replacement).

Yes, they are more expensive (but not to you). This is just one example of the engineering originality and extra value incorporated in Curtis Condensing Units that contributes so much to their dependable, care-free performance.

**CURTIS REFRIGERATING MACHINE CO.**  
Division of Curtis Manufacturing Co.  
1912 KIENLEN AVENUE ST. LOUIS, MO.

**TIMKEN BEARING EQUIPPED**

## CURTIS

"Builders of Condensing Units Since 1922"

Represented in Canada by  
Canadian Curtis Refrigeration Co., Ltd.  
20 George St., Hamilton, Ont., Can.

DISTRIB

## Dealers Co-Opening Kelvin

DETROIT—Kelvin is varying designs in Washington, D. C. Toledo; Enid, Okla.; Pontiac, Ill.; Minneapolis, Pa.; and Syracuse, N. Y. In the past few months, Kelvins have been issued by Kelvinator Corp. and Nash-Kelvinator Corp.

The Washington, D. C. Kelvin is to be constructed in is sponsored by the V. daily newspaper, and around air-conditioning stalled in accordance planning principle wh the coincidental sp studs and floor joists plified ductwork.

Publicized by a p cast over station WR. of the Racine Kelvin sored by the Journal- tended by a crowd of totaled 5,000 for the home was designed by F. Mickelson and S. C. by general contractor and cooperating con furnished by Porter's

The Toledo News Home was designed by Y. Hewlett and Tho built by Aiduss-Builde plied with Kelvinator Tullis & Sizemore, and Buckeye Furniture Co. Co., local Kelvinator stalled the year-around ing system.

Semke Motor Co., K tributor, sponsored the in Enid, Okla., which o day was inspected by n persons.

Said to be one of the ful Kelvin Homes ever constructed in Pine Bluff H. Culpepper for Georg territory manager of t Pine Bluff Commercial publicizing of the hom cooperation of Kaufman Co., Nash dealer.

The Kelvin Home in was equipped by Marq ment Co., local Kelvinator Jointly sponsored by elson, builder, Clyde W. s tect, and F. W. Legler, Waterbury Co., Kelvinato air-conditioning and auto ing distributor in Minn Hennepin County, and Home in Minneapolis is t be built in that city this

Three Kelvin Homes w at the same time in W Pa., by Wetzel-Rider Co having been completed in by Faxon Construction C tor equipment, including conditioning system, was s Williamsport Auto Parts Built according to plans a result of a city-wide su termine tenant-preferences use Kelvin Home was sp Niagara Hudson Public Se designed by M. and H. A. built by Skeel Constructio home is shown by appoint and hostesses explain it features.

## Montgomery Ward Albany, Ore. Buil

ALBANY, Ore. — M Ward & Co. has taken lease on the S. E. Youn building, in the center of shopping district, which w ernized at a cost of \$7 occupied by one of the retail outlets.

## Klamath Falls, Ore. Buys New Buildi

KLAMATH FALLS, Eastside Electric Co., Gene tric distributor, has pur building with 62-foot fro 625 Klamath St. to serve headquarters.



## DISTRIBUTOR-DEALER DOINGS

## Dealers Cooperate in Opening of New Kelvin Homes

CHICAGO—Kelvin Homes of wide-ranging designs have been built in Chicago, D. C.; Racine, Wis.; Enid, Okla.; Pine Bluff, Ark.; St. Louis, Mo.; Minneapolis; Williamsport, Pa.; and Syracuse, N. Y., in the few months, according to released by Kelvinator division, Kelvinator Corp.

Washington, D. C., home, first constructed in the capital city, sponsored by the Washington Post, newspaper, and features a year-around air-conditioning system in accordance with a principle which provides for incidental spacing of wall and floor joists to permit simultaneous work.

Organized by a program broadcaster station WRJN, the opening of the Racine Kelvin Home, sponsored by the Journal-Times, was attended by a crowd of visitors which numbered 5,000 for the whole day. The home was designed by architects W. Nelson and S. C. Russell, built by general contractor Cliff Hudson, cooperating contractors, and installed by Porter's Furniture Co. Toledo News-Bee's Kelvin Home was designed by architects T. W. Lett and Thomas O. Best, installed by Aiduss-Builders, Inc., supplied Kelvinator appliances by S. S. Sizemore, and furnished by the Furniture Co. Fry Furnace and Kelvinator distributor, in the year-around air-conditioning system.

The Motor Co., Kelvinator distributor, sponsored the Kelvin Home in Enid, Okla., which on its opening was inspected by more than 800 people. It is to be one of the most beautiful Kelvin Homes ever built is that located in Pine Bluff, Ark., by J. H. Pepper for George Parks, local real estate manager of 555 Inc. The Huff Commercial promoted the building of the home with the installation of Kaufman-Welch Motor Co. sh dealer.

Kelvin Home in Pontiac, Ill., equipped by Marquette Equipment Co., local Kelvinator dealer. It was sponsored by Peder Mickelthaler, Clyde W. Smith, architect and F. W. Legler, president of the City of Pontiac, Kelvinator residential division and automatic heat-distributor in Minneapolis and St. Louis County, and new Kelvin Home in Minneapolis is the second to be built in that city this year.

Kelvin Homes were opened at the same time in Williamsport, Pa., by Wetzel-Rider Co., the trio has been completed in record time by Construction Co. Kelvinator equipment, including the air-conditioning system, was supplied by Sport Auto-Parts Co. according to plans formed as a result of a city-wide survey to determine preferences, the Syracuse Kelvin Home was sponsored by Hudson Public Service Corp., installed by M. and H. A. King, and built by Skeel Construction Co. The home shown by appointment only, the salesmen explain its modern features.

## Montgomery Ward Leases Albany, Ore. Building

ANY, Ore. — Montgomery Ward & Co. has taken a 20-year lease on the S. E. Young & Son Co. building, in the center of Albany's business district, which will be modified at a cost of \$70,000 and installed by one of the company's outlets.

## Math Falls, Ore. Dealer Buys New Building

MATH FALLS, Ore.—The Electric Co., General Electric distributor, has purchased a building with 62-foot frontage at Math Falls, Ore. to serve as its new branch.

## Ferguson Bros. Appointed Apex Distributor in Northern Iowa

CLEVELAND — Ferguson Bros., Waterloo, Iowa, has been appointed distributor for Apex Rotarex Corp. in north central and northeastern Iowa, announces Charles W. Smith, Apex general sales manager. L. W. Middleton, former manager of Ferguson Bros. retail hardware store in Waterloo, is sales manager of the company's new Apex division.

Mr. Smith also announced the appointment of E. S. Cowie Electric Co., Kansas City, Mo., as distributor of Apex refrigerators, washers, ironers, and vacuum cleaners in Kansas and Missouri. J. M. Murphy is sales manager of Cowie's Apex division. The store also has a branch in Wichita, Kan.

## Kitchen Modernization Is Subject of Meetings Held in West

NEW YORK CITY—A series of kitchen modernizing meetings was conducted by F. H. Harrigan, Pacific Coast representative of National Kitchen Modernizing Bureau, Oct. 11 to 21 at Washington Water Power Co., Spokane, Wash. L. A. Lewis was in charge of the meetings.

A similar series of meetings was scheduled to be held Oct. 25 to 31 at the offices of Pacific Power & Light Co., Portland, Ore., with G. E. Davis in charge.

B. F. Weadock, Jr., field representative of the bureau, was in the territory of Regional Director J. E. North, Cleveland, before visiting Ohio Edison Co., Youngstown, Ohio, on Oct. 18 and 19.

## Teweles Moves Refrigeration Dept. to New Building

JERSEY CITY, N. J.—Arthur G. Teweles, Inc., refrigeration, air-conditioning, and heating appliance dealer, has moved its refrigeration and gas range departments from 913 Bergen Ave. to the company's new building at 435-39 Mercer St., where the showroom, service department, and electric refrigeration supply departments will be combined.

## Columbus Dealers Sponsor Appliance Exhibit

COLUMBUS, Ohio—Several makes of refrigerators, radios, washing machines, ironers, and other electrical appliances were displayed at the four-day fall showing in Memorial hall here recently, promoted by the local Electric Dealers Association.

Members of the exposition committee were C. C. Robinson, Gail Thompson, F. P. Boyland, Ed Foster, and Henry W. Emswiler. The Columbus Dispatch, daily newspaper, sponsored the show for the association.

## Dayton Dealer Sales Show 23% Gain in 9 Months

DAYTON—Sales of household refrigerators in Dayton for the first nine months of this year show a gain of 23% over those of the same period of 1936, according to reports of 67 local dealers. Sales for the month of September, however, dropped 2% below those of September, 1936.

Gas refrigerator sales during the first nine months of this year dropped 7% below those of 1936.

## Carr to Manage Providence Branch of Wetmore-Savage

PROVIDENCE, R. I.—James W. Carr, with Westinghouse Electric Supply Co. at Springfield, Mass., for 15 years, has been named Providence manager of the Wetmore-Savage branch of the company. He succeeds Jordan K. Silver, manager here for the past six years and president of the Electrical League of Rhode Island, who has been advanced to a similar position at Boston.

## Friendly Suit to Test Wyoming Fair Trade Act

CHEYENNE, Wyo. — Wyoming's new fair trade practices act, subject of a constitutional test before the state supreme court here, was defended last week as deterrent to monopoly.

In a friendly suit started to obtain a court ruling on the act, Attorney General Ray E. Lee filed a brief with the court stating the act is within

the police powers of the state in that it prohibits the sale of merchandise below cost only when done with an intent to destroy competition.

"The limitation placed by the legislature is the saving clause," he said. "It is not a price fixing statute; not an infringement on the rights of a merchant to do as he pleases with his own property; and is not an unreasonable exercise of power."

"In the last analysis, the act is a wholesome one and deprives no one of his natural rights. The legislature undoubtedly felt that price-cutting by merchants who could afford to do so, would eventually have the

effect of driving competitors out of business—because it is so obvious that when goods are sold below cost, the vendor must operate on surplus or new capital if he is to continue in business, and the little merchant has neither.

"So the practice ultimately would result in monopoly with the inevitable detriment to the public good. That, however, is a matter for legislative action, subject only to constitutional limitations—and in this case we have no constitutional objections, because the restraint placed on merchants applies only when done for the purpose of destroying competition."

## SUCTION AND DISCHARGE VALVES ARE ASSEMBLED IN A COMPLETE VALVE PLATE UNIT FOR SIMPLIFIED REPLACEMENT



It rarely happens on a Brunner... but when the valves do "act up", the trouble can be corrected inside of a few minutes time. Yes, and you don't have to search for an expert—any mechanic can do it! The complete assembly of Brunner suction and discharge valves in a single valve plate means that by removing a few bolts, lifting out the faulty valve plate and installing a new one, the job is quickly finished without loss of service, without loss of refrigerant... The unique valve plate assembly exemplifies the advanced thinking behind every Brunner detail. Why not get better acquainted with the way Brunner Refrigerating Equipment is engineered for dependable service? \* \* Forty-seven condensing units and five compressor models for nearly all refrigerating and air conditioning requirements. BRUNNER MANUFACTURING COMPANY, UTICA, N. Y., U. S. A.

# BRUNNER

BUILDS FOR *Greater* DEPENDABILITY





SWING-ALONG



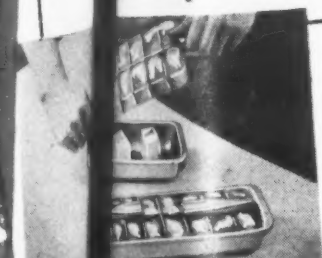
**PROFIT FROM**  
*Personal Proof*  
**IN 1938**



**NEW SUPER-CAPACITY FROSTER**  
Freezes more ice, faster...  
has one-third more frozen storage capacity. Top shelf provides ideal frozen storage space for small chickens, game and roasts. New multi-service tray has 5-pound ice capacity.  
*Kitchen-proved*



**Hard Cold in the new STORAGE COMPARTMENT**  
It's the food preservation! Keeps food tasty for days, retains flavor and flavor. Enclosed protection conserves needed low zone temperatures.  
*Kitchen-proved*



**IMPERFECT-O-CUBE TRAYS**  
The fast-freezing, all-releasing ice tray...  
...than ever, even...  
...ice cubes out...  
...cold. Serves one...  
...time, or a tray full...  
...Tray Lift — on...  
...loosens tray with...  
...pressure.  
*Kitchen-proved*

THE PARADE STARTS



# Join with The New 1938 Kitchen-proved Westinghouse REFRIGERATORS

join another  
BIG HIT PARADE!



turing



ld in the new  
COMPARTMENT

the year—a big step  
preservation! Keeps  
y for days, retaining  
avor. Enclosed porce-  
nserves needed mois-  
temperatures.

s-proved



UBE TRAYS

ezing, all-  
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Serves one  
a tray full.  
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ved



## Visible Humidity in the New Glass-Topped HUMIDRAWER

Twice the space for fresh fruits and vegetables—in this full-width, porcelain compartment with transparent glass top. Handsome! Convenient! It keeps fresh foods at their best, a week's supply at a time.

*Kitchen-proved*



## Actual Temperature Selection with New ZONED CONTROL REGULATOR

Gives temperature desired at any time—regardless of kitchen temperature. Assures better food protection, more efficient operation. Simple "finger-tip" control dial in new convenient location.

*Kitchen-proved*

## MANY OTHER OUTSTANDING FEATURES

*All Kitchen-planned and Kitchen-proved*

Including forced-draft cooling, all-steel cabinets, new "Sani-bar" shelves, sliding "Adjusto-Shelves", built-in thermometer, automatic interior light, Delphinium Blue "Food Saver" Dishes and Water Server.

## EASIER THAN EVER TO SELL!

Backed by a smashing advertising and selling program, based on the greatest Kitchen Proving Program in all history! It's a "wow" of a program, with brand new "Kitchen-proved" Facts—and What Facts! Better get on the band wagon early and swing ahead with Westinghouse in 1938.



## Lasting Economy with the famous ECONOMIZER UNIT

10 hours out of 12 it uses no current at all. Hermetically-sealed! "Built-in Watchman" Protection! Backed by a 5-year warranty that protects the dealer as well as the user.

*Kitchen-proved*

## A "HOT NUMBER" for every prospect

*In this complete, yet simplified line*

Westinghouse is all you need this year—to sell any kind of prospect. If they want the last thing in completeness and luxury, **YOU HAVE IT**—in both porcelain and Duxor models. If they want exceptional value in the popular-price class, again **YOU HAVE IT**—in both porcelain and Duxor cabinets. If they want first-line quality in budget-priced models, **YOU HAVE THAT, TOO**—in the new sensational "5-Star Specials."

And it's a simplified, compact line—displayed and demonstrated with comparatively few models. You can "trade-up" easier with Westinghouse. In short, for 1938, Westinghouse is **ALL YOU NEED** for more sales **EASIER**, at a bigger profit.

## New Finance Plans HELP YOU STOCK AND SELL

New "Dealers' Display" plan permits even the smallest dealer to carry impressive display stock... for as little as 15c a day. New "Progressive Sales" plan enables you to sell old customers additional appliances, at unusually attractive terms.

## MAIL THIS COUPON TODAY!

Westinghouse Electric & Mfg. Company  
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## AIR CONDITIONING AND REFRIGERATION NEWS

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Established 1926 and registered as  
Electric Refrigeration News

Published Every Wednesday by  
BUSINESS NEWS PUBLISHING CO.  
5229 Cass Ave., Detroit, Mich.  
Telephone Columbia 4242  
Cable Address: Cockrell-Detroit

### Subscription Rates

U. S. and Possessions, Canada, and all  
countries in the Pan-American Postal  
Union: \$4.00 per year; 2 years for \$7.00.  
All other foreign countries: \$6.00 per year.  
Single copy price, 20 cents. Ten or more  
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VOL. 22, No. 10, SERIAL No. 450  
NOVEMBER 3, 1937

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## Safe Limits to Time Payments

TIME PAYMENTS continue to be a source of considerable discussion around the industry. For years the opinions one heard expressed were practically unanimous that something should be done to "get time payments under control." Substantial down payments, and terms not exceeding two years in length, were a goal seemingly sought by almost everyone.

One of the chief criticisms of long terms has been the fact that the guarantee period, as a practical measure, usually had to cover the period of payments—otherwise the ailing appliance might have to be repossessed.

### Opening Wedge for Drive Against Long Guarantees

Those who oppose long warranties have argued that if finance maturities were shortened, it might be an opening wedge in the drive against the multi-year guarantee.

However, now that finance companies have moved to put appliance term paper on a sensible basis, an occasional doubt is heard. One such letter came recently to the NEWS, written by a high executive of an important public utility.

This writer wanted no personal publicity attached to his cogent observations, so we are merely reprinting some of his arguments anonymously herewith:

### 'Falling for Propaganda Of Finance Companies'

"My attention was attracted by the editorial on Time Payment Terms which appeared in the October 6 issue of AIR CONDITIONING AND REFRIGERATION NEWS.

"I am very much afraid you are falling for the propaganda of the commercial finance companies who are now striving to, as they express it, 'get down payments and terms back to normal.' An-

other point of view would express it quite differently, namely, that the finance companies feel that now is the time not only to stiffen terms, but I am informed they have in mind raising finance rates so that their profit position may be further improved.

"Back in 1932 merchandisers faced the problem of trying to sell their goods on finance plans that required a minimum of 10% down, allowed a maximum of 24 months on a refrigerator, and imposed a finance charge of \$13.04 on a \$100 balance spread over a period of 12 months. It was a very profitable business but not calculated to develop large volume of merchandise sales in a depression market.

### 'Want to Get Terms Back to Normal'

"Later, under the pressure of F.H.A. and E.H.F.A., the finance companies found that they could handle this business successfully on terms even lower than this. Now, with pressure relaxed, the finance companies want to get back to 'normal.'

"We can find no experience of bad collections, except in one or two places where the F.H.A. Plan ran wild or in communities that have been very hard hit by strikes.

"Business has been very good and I can well appreciate that many manufacturers, struggling more with a production than with a sales problem, would see no immediate harm in curtailing terms.

### 'Finance Plan Changes Will Affect Appliance Sales'

"The utility companies, however, need load building appliances as much if not more than they ever have in their history, and you can be certain that such sharp changes as have been recently made effective in many of the national finance plans, coming on top of a recession in business, are going to make themselves felt on appliance volume.

"We, ourselves, in the light of business uncertainties are somewhat sympathetic to the shortening of maturities. We think we can still sell lots of ranges and refrigerators if permitted 30-month maturities, but the down payment increase is too much to swallow and, to my way of thinking, has no part in the picture.

"If a purchaser's credit is carefully investigated, the amount of down payment has little effect on the quality of instalment paper.

### Competition with Outlets Requiring Nothing Down

"The same issue of your magazine carries a story on the activities of the gas industry in bringing out a 'Super-Gas Range,' and while electric range promotion is dependent in each locality on the drive of the public utility company, gas range merchandise is in many cases in the hands of furniture and other types of retail outlets, who merchandise on a basis of nothing down, no carrying charges, etc.

"Those are the realities of the situation which have to be faced by any operating man in the field and no amount of fine spun theory will help him meet that kind of a situation.

"I hope a second look will convince you that in the long run the present move is a disturbing one, that certain features of the present decision should be reviewed

and modified and that we should resist with all the means at our disposal and return to the 'good old days.'

### Admirable Presentation of Case for Long Terms

As the newspaper of the industry, the NEWS wants to publish not only both sides, but all angles, to any controversy or moot question which affects so great a portion of our readers as does this one. The remarks quoted above are well-timed and well-reasoned. They present the case for long terms admirably.

The NEWS objects strenuously, however, to the allegation that we are "falling for the propaganda of the commercial finance companies." Whether or not they are staging a campaign to "get down payments and terms back to normal" is something we do not know, although we are in favor of the idea.

As a matter of fact, it has been an unusually long time since any member of the editorial staff has contacted any member of the large financing institutions, nor have we had any letters from any of them indicating that they would appreciate our help in keeping terms from getting out-of-hand.

### Previous Complaints of Dealers on Terms

The NEWS has had innumerable letters on that subject, however, from subscribers. As far back as five years ago reporters of the NEWS were getting complaints from dealers they were interviewing that the competition on terms was becoming dirtier than any price war in which they had ever engaged.

Since that time, we have received not only oral but written protests from dealers and distributors regarding the granting of long terms and sales based on no-down-payment plans. Furthermore, we have had opportunity to observe the high number of casualties among dealerships which have gone to extremes in the extension of credit to customers.

Incidentally, a large number of the complaints we have received have been directed toward public utility merchandising operations. Hence we are not surprised to find that the only objection we have yet heard to the editorial in the October 6 issue of the NEWS comes from a utility man.

### Dealer Cannot Absorb Losses on Poor Credit

As the writer of the letter states, utilities need more load-building appliances on their lines. They can afford to absorb possible credit losses in the process of increasing that load. Selling appliances is simply a sideline, something which can be charged off to promotion expense. That is not the case with the dealer. Selling appliances is his business; and it must be conducted on a sound basis if he is to prosper.

Last spring and summer the editor sat in on meetings of the National Retail Dry Goods Association and the National Retail Furniture Association, and heard the discussions on the subject of finance terms—the principal topic at both conventions.

Those discussions were really not arguments; few dissenting voices were raised against the resolutions calling on finance companies to increase down payments and shorten maturities.

### Trying to Get Competition Into Line on Financing

The gentleman from the utility writes that long terms are necessary to meet the "realities of the situation which have to be faced by any operating man in the field . . . furniture and other types of retail outlets which merchandise on a basis of nothing down, no carrying charges, etc."

Quite true, but the furniture dealers and department stores, themselves, realize the problem and have taken steps to correct it. Instead of going the limit to meet competition, they are trying to get competition into line.

Desperate measures are not needed to sell electrical appliances. This is a young and healthy industry. It has much more to fear from tactics which tend to cheapen it than it does from possible temporary loss in volume occasioned by the placing of its consumer financing on a sound basis.

## LETTERS

### Goodrich Omission Due to Unreturned Survey

The B. F. Goodrich Co.  
Akron, Ohio

Oct. 26, 1937

Gentlemen:

We have received today the Oct. 20 issue of your paper with the supplement entitled Commercial Refrigeration Buyers' Guide.

We notice that you have listed under the heading "V Belts" most of the major manufacturers of this commodity, with the exception of the B. F. Goodrich Co.

It is our natural assumption that you would care to correct your records so that any future printing would show us as a V-belt manufacturer.

ROBERT T. KAIN,  
Mechanical Sales Department.

Answer: Your company failed to return a reply to our questionnaires and requests for descriptive literature.

### Preliminary Supplements Make Corrections Possible

C. J. Tagliabue Mfg. Co.  
Park & Nostrand Aves.

Brooklyn, N. Y.

Oct. 27, 1937

Sirs:

Some time ago you issued an AIR CONDITIONING AND REFRIGERATION NEWS Supplement, Vol. 21, No. 8, Serial 431, in which our company was correctly listed under each group of products we manufacture. Supplement Vol. 22, No. 8, Serial 448, arrived this morning and we were surprised to find our address shown as New York City under the various headings whereas in the alphabetical index we were correctly listed.

Most important of all, however, you neglected to show us as manufacturers of thermometers—this, notwithstanding the fact that we were under this classification in Supplement Vol. 21, and in addition have been advertising these instruments in the regular issues of AIR CONDITIONING AND REFRIGERATION NEWS at least once, and sometimes twice, a month since the first of the year.

The writer would appreciate your looking into this matter and advising us what can be done.

G. A. TERHUNE, Adv. Mgr.

Answer: See answer to following letter.

Filtrine Manufacturing Co.  
51 Lexington Ave.  
Brooklyn, N. Y.

Oct. 25, 1937

Publisher:

We just received a copy of your Commercial Refrigeration Buyers' Guide and are interested in the last paragraph on page 2, which reads, "The NEWS Will Welcome Corrections." We take the liberty of calling to your attention the fact that this company has been subscribing to space in your Buyers' Guide Column for the last six months and listing therein various of our products. For example: see page 18 of your Oct. 20 issue.

In checking with your listings on page 40 of the Buyers' Guide, we note that our name is not included either under captions "Water Coolers" or "Water Cooling Low-side Systems." In

other words, out of three headings in this section we have been listed but once.

We also note that we are not included under "Condensers—Water Cooled" on page 29 or under "Steel Pipe Coils" on page 30.

The last paragraph on page 2 states "Every effort has been made to include the names of all manufacturers who are prepared to furnish the products in the various classifications."

C. F. HANSEL, President.

Answer: Owing to the fact that there has been no revision of the Directory since 1935, it was necessary to assign this job to members of the staff who had no previous experience with this type of work. Unfortunately, we could not call on the members of the editorial or advertising departments of the NEWS because their time is fully occupied with their regular duties.

Anticipating the possibility of errors and omissions, we published this preliminary edition of a section of the Directory in order to stimulate interest on the part of manufacturers (many of whom failed to return our questionnaires) and also to give the new Directory staff experience in the details of the job.

We appreciate your interest and will endeavor to get your lists correct and complete in the new 1938 Directory which will be off the press in December.

### Koch Left Out of Commercial Guide

Koch Refrigerators  
A Division of Koch Butcher's  
Supply Co.  
North Kansas City, Mo.

Oct. 27, 1937

Sirs:

We have just received your supplement to AIR CONDITIONING AND REFRIGERATION NEWS, being a Commercial Refrigeration Buyers' Guide.

We are astonished to find no mention made of this company in your alphabetical index of manufacturers in the commercial refrigeration industry, notwithstanding the fact that we have been constant advertisers in the REFRIGERATION NEWS for a long time.

On examining our files and the files of our advertising agency, we fail to find any request from you for information for this alphabetical index. Yet on perusal of the index, it would appear that practically everybody else in the industry is mentioned.

If a request was made by this company for listing, we would like very much for you to give us a copy of such request, and in any event, we would like to have an explanation from you by return mail as to why this company was not listed in the index referred to.

C. E. DILLON.

Answer: Investigation shows that we received the required information in reply to our questionnaires and that the omission was due to some unaccountable error in handling the great mass of material involved in preparing the booklet.

We realize that it may appear reasonable to assume that we, as a company, should be entirely familiar with your company and your products but as a practical matter it is extremely difficult to coordinate all of the information which comes into our office, through correspondence and personal contacts, so as to make it available to the editor of a book which is issued only once a year or less frequently.

We hope you will accept our apologies for this oversight. Correction will be made in the complete edition.

### We're Planning To Keep It Up

4115 Buell Drive  
Ft. Wayne, Ind.

Air Conditioning Editor:

Enclosed you will find a post office money order for \$1 for which please send me your Summer Air Conditioning Manual, No. A-1.

I wish to be put on your mailing list to be notified at the time your subsequent manuals are ready; especially the one on winter air conditioning and the reference manual.

Keep up your good work. It isn't often in these days that a man who knows his business is willing to impart his knowledge freely to anybody who may be interested, even though in so doing he would benefit himself indirectly and the industry as a whole.

J. K. MARQUARDT.

Answer: Manual No. A-2 on Winter Air Conditioning is now ready for delivery and No. A-3 will be available very soon.

"You publish a fine paper. I am more than pleased with the amount and the quality of the news it brings me."—Joseph C. Cox, Huntley, Montana, Sept. 28, 1937.



## COMMERCIAL REFRIGERATION

### Chinese Salesman's Knowledge of Own Race's Buying Habits and Language Helps Him Sell Servel Commercial Equipment

NEW YORK CITY—Tinchi Loo, crack Chinese refrigeration salesman of the commercial division of Majestic Refrigerator Corp., Servel distributor here, has compiled an admirable sales record by concentrating his efforts on establishments owned by people of his own race.

Mr. Loo's knowledge of refrigeration equipment combined with his ability to understand the language, buying habits, and viewpoints of his own people has enabled him to sell Servel commercial refrigeration equipment to many of New York's Chinese merchants. Many of Mr.

Loo's contracts must be written in both English and Chinese so that they will be understandable to all parties concerned.

One of the most recent installations sold by Mr. Loo is the completely new Servel-refrigerated food storage system in Ruby Foo's Den, Chinese restaurant located just two blocks off Broadway.

Among other Chinese to whom Mr. Loo has sold Servel equipment are: John Chu, Wong Hing, Low Chong, Chew Lean, David Fong, Jack Lum, Harry Y. Lee, Sing Lee, Lee Tom, Tai Yau, Tom Foo, and Henry Chin.

### Lunch Stand Installation Is Demonstration Showroom For Equipment

DES PLAINES, Ill.—A small lunch and drink stand known as "The Point" is serving as an unusual and successful "demonstrating showroom" on Kelvinator and Temprite equipment for the Sigwalt Refrigeration Co., Kelvinator distributor—in addition to doing a thriving business for the company on barbecue sandwiches, cold drinks, pies, and ice cream.

Located at a busy spot on Dempster Road highway, The Point advertises its all-electric kitchen, Kelvinator equipped. Many of the passersby who stop in for a bite to eat become prospects for Kelvinator home appliances.

Electric equipment used includes: one 7R29 commercial service refrigerator, a 6-cu. ft. household refrigerator, an electric range, a three-hole ice cream chest, and a Temprite beer cooler and condensing unit.

### 110-Gal. Cabinet Used to Harden Ice Cream

ST. CHARLES, Mo.—Saul Wolff, owner of Standard drug store, recently purchased a 110-gal. refrigerated storage cabinet in which to harden and stock the ice cream which he manufactures. The cabinet is kept at a temperature of -10 to -20° F. by a ½-hp. compressor.

### Commercial Equipment Used to Store Blood For Emergencies

ATLANTA—An out-of-the-ordinary sale of commercial refrigeration equipment recently was made by L. P. Bannister, Atlanta commercial salesman for Georgia Power Co., to Grady city hospital here.

First part of the sale was a "blood bank," consisting of a Hussmann-Ligonier commercial refrigerator cabinet and a Westinghouse refrigeration unit, to be used for storage of blood taken from voluntary donors, for use in emergency operations requiring transfusions. Storage of the blood, which is kept at 36° F., lessens the delay in finding a donor with matching blood when an emergency transfusion is necessary.

Second part of Mr. Bannister's sale included General Electric refrigerating units, including compressors and blower-type cooling coils, for use in white and negro mortuary rooms.

### Long Joins Sales Promotion Staff of York

YORK, Pa.—William H. Long formerly associated with Lord & Thomas advertising agency and former member of the editorial staff of AIR CONDITIONING AND REFRIGERATION NEWS, has been appointed to the sales promotion staff of York Ice Machinery Corp., announces J. L. Rosenthal, sales promotion manager.

### Open-Top Display Case For Vegetables Is Built by McCray

KENDALLVILLE, Ind.—McCray Refrigerator Co. has recently put on the market a new open-top refrigerated display case for vegetables, designed to keep produce fresh as well as provide opportunity for housewives to inspect the goods before buying it.

Available in lengths of 8 and 10 ft., the case may be had either with or without a top display section. With the top section, the case is 67½ in. high; without the section, the height is 43 in. Depth of the case is 40 in.

Two of the cases, without top sections, may be placed back-to-back in the center of a store to form a display "island," the company suggests.

A barrier of glass 10 in. high forms the front of the refrigerated display section of the case, and prevents spilling of the refrigerant. Top is open, and the cold air lies in the case like a pool of water, McCray engineers claim.

Unrefrigerated section below the center display portion is arranged

with wire baskets which also have an adjustable tilt. This section may be used for dry fruits and vegetables, such as oranges, lemons, potatoes, onions, etc.

Refrigerated display section of the case is fitted with a canvas top, which may be unrolled at night to cover the display.

Walls of the case are 3¼ in. thick, and the case is built for electric refrigeration only. It is cooled by a finned coil at the back, and a tubular coil beneath the floor, leaving the floor itself smooth for cleaning. A ½-hp. compressor is required to cool the case.

### Trane Introduces New Propeller Fan

LA CROSSE, Wis.—A new propeller fan built with four wide, curved, steel blades set at an angle of 30° with the plane of rotation to insure quiet operation has been designed by the engineering staff of Trane Co., here under the direction of William Rowe.

The new fan is being incorporated into Trane unit heaters, unit coolers, evaporative condensers, and other air-using equipment.

### Servel Names 2 New District Managers

EVANSVILLE, Ind.—W. F. Cissell and Harry F. Bell have been appointed district managers of the southern and eastern districts, respectively, of the electric refrigeration and air-conditioning division of Servel, Inc.

Mr. Cissell has been associated with various Servel activities for the past 10 years. Before being transferred to the factory office two years ago, he represented Servel in the southwestern section of the country, headquartered in Dallas.

Mr. Bell, in his new position, will work under Eastern Manager E. A. Terhune, and will cover various phases of distributor operations throughout the territory. Before joining Servel's factory organization, Mr. Bell had had nearly 10 years of experience in selling commercial refrigeration equipment. He entered the business in 1928 as retail salesman for Servel's Boston distributor. The following year, when Mr. Terhune took over the distributorship and organized the Appliance Engineering Co., Mr. Bell continued with that firm. In 1933 he was made sales manager of the company.



## This Is Just a Nut

Its job is not spectacular—yet this nut, regardless of the ordinary nature of its service, has been treated with the same respect for fine materials, close tolerance, and superb machining as all other parts used in Mills Compressors.

## Mills Compressors

Mills Novelty Company, 4100 Fullerton Avenue, Chicago, Illinois



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Water is cooled instantaneously, at the bubbler—only as used—in the Temprite Instantaneous System. This saves water, refrigeration, time. Further economies in power used for refrigeration and in installation cost come from complete elimination of cold water circulating lines—water is not cooled in the basement.

Each fountain may be set to any desired temperature, which it will maintain regardless of load, weather or water inlet temperature.

Write for Bulletin W-2.

**TEMPRITE PRODUCTS CORP. Detroit, Mich.**



## This Set of New Books Will Open the Door to Jobs and Profits

PIONEERS began experimenting with air conditioning long before the World War. During the Post-War boom, cooling systems were installed in a few public buildings, notably the White House, and in a considerable number of theaters located in the larger cities. Naturally, such installations were quite expensive but it soon became evident that artificial cooling was a good investment for many types of commercial establishments.

Comfort cooling quickly gained popularity with the public. Air-cooled movie theaters attracted crowds throughout the hot summers. The railroads tried it out on their extra-fare trains and were so impressed by the results that they bought additional equipment as fast as they could get it delivered. Restaurants, hotels, beauty shops, fur stores, department stores, and numerous other lines of business started buying.

During the past few years the manufacture of equipment has been growing at an amazing rate. During 1937 sales really began to boom. All kinds of enterprising manufacturers, distributors, dealers, and contractors are now planning to take advantage of the opportunities which are developing so rapidly.

Money will be made in air conditioning and money will be lost. It will be made by those who learn the business from the ground up so that they recognize the problems and know how to solve them quickly and efficiently.

Money will be lost by those who rush into the business without proper preparation, with the result that expensive mistakes will eat up their capital, waste their time, and destroy the confidence of their customers.

A proper understanding of air conditioning calls for some knowledge of several different fields of science (including mathematics, physics, chemistry, thermodynamics, etc.). In the series of manuals entitled "Air Conditioning Made Easy," all of this essential information has been collected and arranged in logical order. The whole subject has been greatly simplified and made practical for any intelligent person who wants to learn about air conditioning. Considering the small price of this authentic information, you cannot afford to do without these books.

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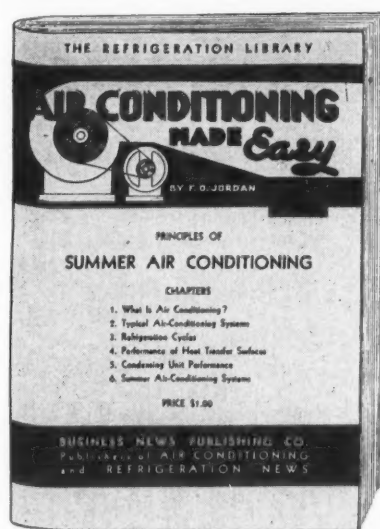
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phases of air conditioning for engineers,  
contractors, service men and students

By F. O. Jordan, B.S.M.E.

Graduate of Purdue University, Registered Consulting Engineer,

Member American Society of Refrigerating Engineers,

Air Conditioning Editor of Air Conditioning & Refrigeration News



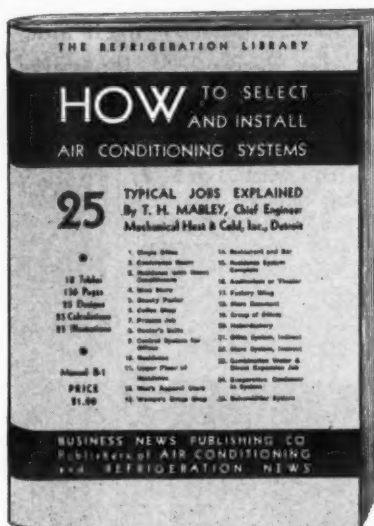
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MANUAL NO. A-2—Principles of Winter Air Conditioning. Chapters on typical heating systems, typical heating connections, steam and hot water heating systems, hot air heating systems, heat generators and controls, heating specialties, specifications of heating systems, trouble shooting. 104 pages. Price \$1.00.

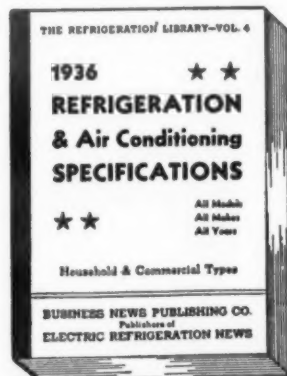


MANUAL NO. A-3—Principles of Design Engineering. Chapters on conditions for human comfort, methods of comfort control, mechanics of comfort control, principles of design, air-conditioning unit design. Price \$1.00. Other manuals in this series will be announced later.



Manual No. B-1—Twenty-five typical air-conditioning jobs explained and estimated. See adjoining columns for further details. Especially valuable for contractors, dealers, and prospective users who want brief and condensed information. 136 pages. Price \$1.00.

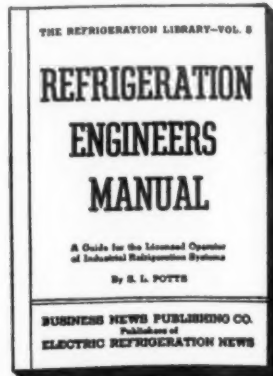
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## How to Select And Install Air Conditioning Systems

By T. H. Mabley

THIS NEW BOOK (Manual B-1) contains a series of 25 case histories written by Mr. T. H. Mabley, chief engineer, Mechanical Heat & Cold, Inc., Detroit, Mich. Each installation was engineered by Mr. Mabley in his regular work as chief engineer for a large Detroit air-conditioning contractor and distributor.

The "cases" start with the simpler installations such as a single office and continue on through to more complicated installations, such as process jobs and the air conditioning of auditoriums and department stores.

Simple methods are given for calculating heat gain and loss for each job, determining certain applications and conditions where some locating and installing equipment. Both direct and indirect systems are used in these typical installations and the advantages and disadvantages of each method are given.

While all the known fundamental functions of air conditioning are desirable, there are certain applications and conditions where some of the functions are not considered necessary nor economical to install and operate. High relative humidity, such as may be obtained with winter humidification, might cause show windows in a store to cloud up, thus impairing the display. For such an application the summer functions are purchased, and winter humidification is omitted.

In a process job all of the functions may be utilized as the conditioning equipment is required to maintain predetermined year-around temperature and humidity within close limits.

Conditioning an auditorium where large crowds of people will be present for two or three hour periods has its particular problem while the design limits for a department store with its heavy electric light load require expert attention. All of these and other factors that must be considered are discussed for the individual application, and the selection of equipment is based upon the load calculations for predetermined design conditions.

The procedure followed on these 25 typical jobs may be studied by the contractor, dealer, or engineer, and much valuable information may be gained that may save hours of time and possibly prevent expensive mistakes.

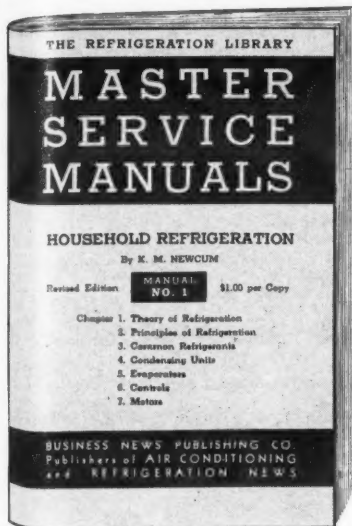
## 25 Typical Installations

- No. 1. A Single Office—Partial year-around air conditioning installed.
- No. 2. A Conference Room—Two unit conditioners installed. Present heating system left intact.
- No. 3. Residence System with Room Cabinets—Humidification supplied to first floor rooms only.
- No. 4. A Shoe Store—Cooling is the prime factor.
- No. 5. A Beauty Parlor—Primarily interested in summer cooling.
- No. 6. A Coffee Shop—Summer cooling and adequate ventilation required.
- No. 7. A Process Job—Covering a wide range of conditioning requirements of a more exacting nature.
- No. 8. A Doctor's Suite—Reception room and three private offices are conditioned with standard type unit.
- No. 9. Central System for Group of Offices—Conditioned air is distributed to various offices through a duct system.
- No. 10. A Residence—Summer conditioning for the first floor and one bedroom.
- No. 11. Upper Floor of a Residence—The second floor rooms which were omitted from Case 10.
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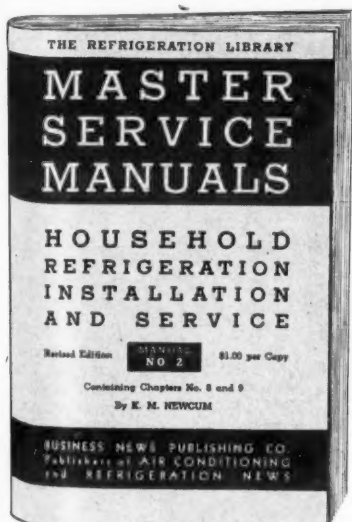


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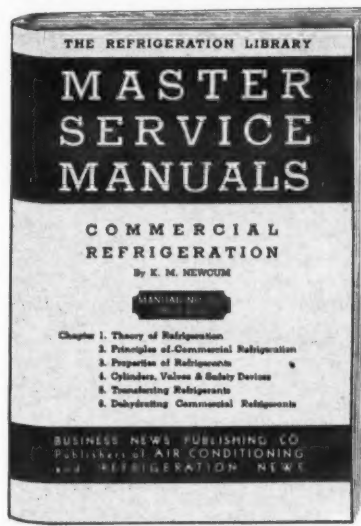
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## SERVICE METHODS

### Characteristics of Component Parts of Servel Models 12A, 12B, 13A and 14A to Be Considered in Servicing Units

BY K. M. NEWCUM

Servel household refrigerator systems models 12A, 12B, 13A, and 14A use low side float valves. Condensing units for these systems employ the single-cylinder, vertical, reciprocating compressor.

The cycle of operation of these low side float Servel systems may be noted in Fig. 1.

The evaporators used with the above condensing units are of the low side float type, as may be noted in Figs. 2, 3, and 4.

#### THERMOSTATIC CONTROL

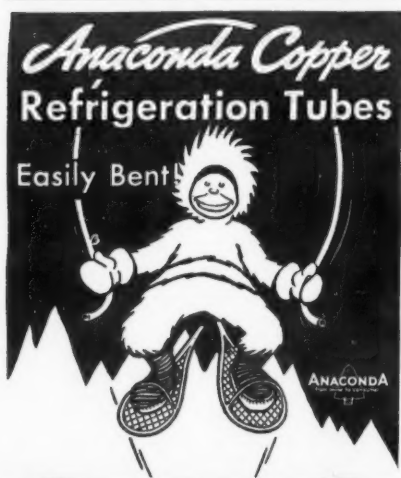
These systems are controlled by a thermostat. Two types used are illustrated in Figs. 5 and 5A.

The single cylinder compressor, Fig. 6, is of the eccentric-type design, using the revolving bellows seal as described under models 1-21 and 21A.

Unlike models 1-21 and 21A, the cylinder is not fitted with steel sleeves. The piston seals against the finished wall of the compressor cylinder proper.

#### PISTON PIN

Piston pin is of the full-floating type, each end of which is fitted with large headed copper pins to prevent scoring of the cylinder walls in event of contact during operation.



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The piston is equipped with three piston rings, the top two being compression rings, while the bottom one is an oil wiping ring.

Suction gas inlet is in the side of the cylinder wall opening directly to the piston and piston valve. An oil return opening to the crankcase is provided at the bottom of the suction port (see Fig. 6).

The piston valve is of the conventional Servel flapper type, being secured to the center of the top of the piston.

#### DISCHARGE VALVE

Discharge valve is also of the flapper (reed) type being supported by three slotted head cap screws as may be noted in Fig. 6.

The correct oil level in the crankcase is just above the eccentric shaft and just below the oil plug. The

correct oil charge is one pound of Servel white compressor oil.

Suction and discharge service valve gasket arrangement is the same as on models 1-21 and 21A.

Compressor speed is 395 r.p.m. The belt length is 39 1/16 inches.

#### REFRIGERANT CHARGE

The condenser receiver assembly is shown in Fig. 7. It consists of a radiator type condenser mounted on top of the liquid receiver. The receiver is equipped with a fusible metal plug which has a melting point of 280° F. For this reason, care should be exercised in applying heat to the receiver.

The receiver is fitted with a standard two-way shut-off valve for the liquid line connection. A fine mesh screen is attached to the liquid outlet connection just inside the receiver.

The liquid line connection on the receiver shut-off valve is not the conventional S.A.E. fitting but is a Parker type. This special joint may be noted in Fig. 8.

#### CONDENSER RECEIVER

Correct liquid receiver refrigerant (methyl chloride) charge is 1 1/4 lbs. Although it has additional capacity, it is not sufficiently large to store all of the refrigerant in the low side in event it is necessary to pump down the complete low side charge. In such event, it is necessary to connect an empty refrigerant cylinder of sufficient capacity into the system to accept this additional refrigerant.

(Concluded on Page 23, Column 1)

### Low Side Float Evaporators

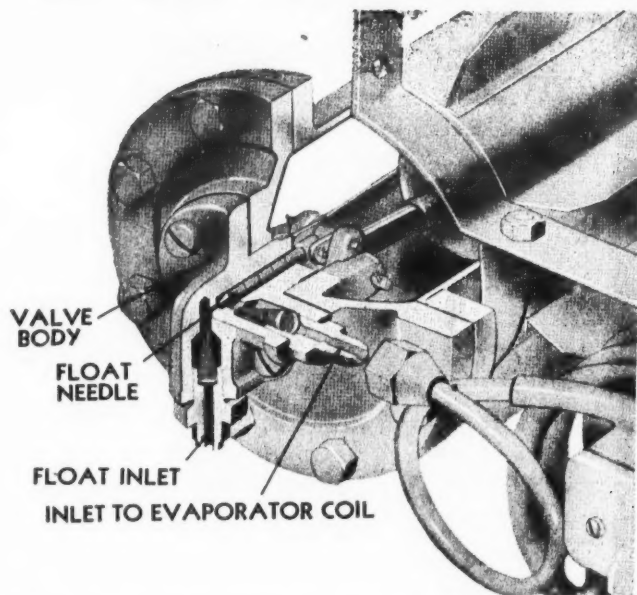


Fig. 2—Float needle valve assembly. With this design, the liquid entering the opening at the float needle is first passed in the tube marked inlet to the evaporator. This system was used by Servel.

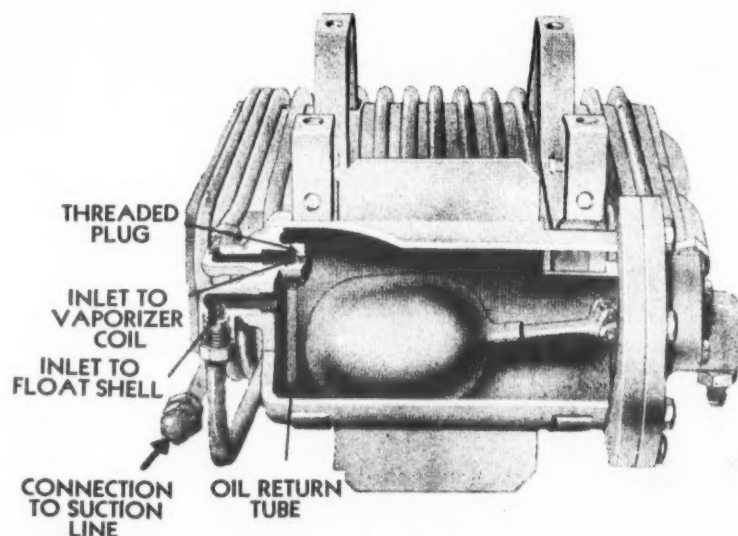


Fig. 3—Shell and liquid return device, showing inlet to vaporizer coil.

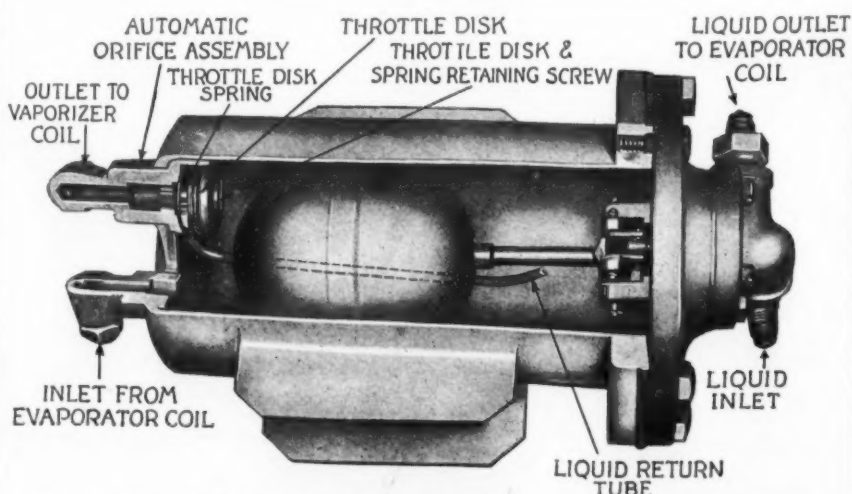


Fig. 4 shows in detail the automatic orifice assembly used on Servel evaporators.

### Servel Operating Cycle

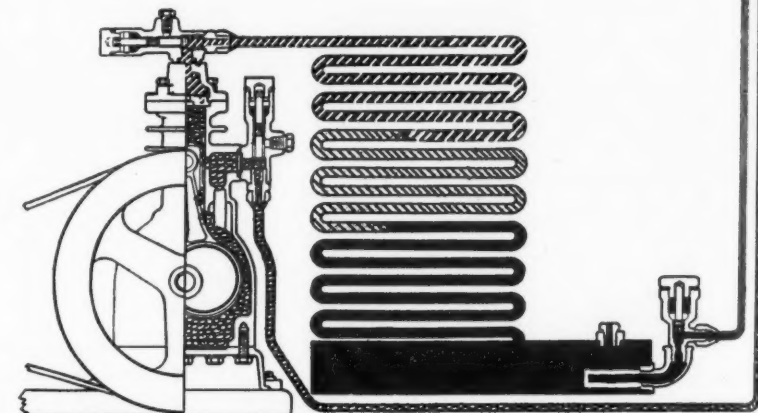
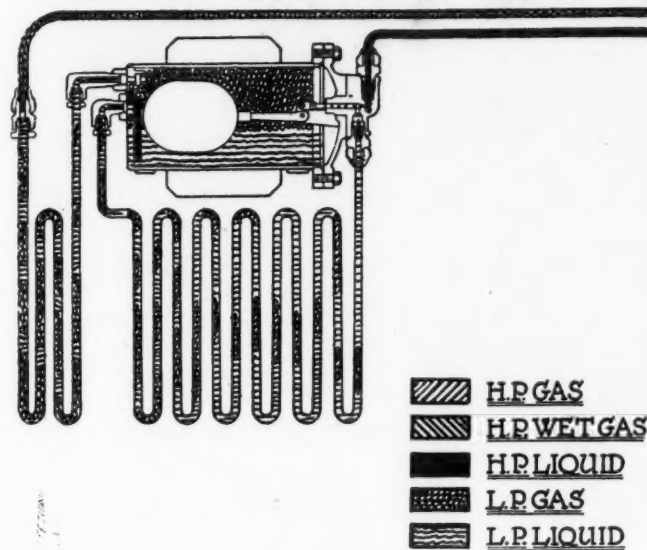
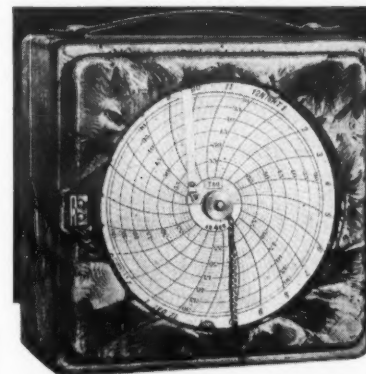


Fig. 1 shows the cycle of operation of Servel's low side float systems (models 12A, 12B, 13A, and 14A).

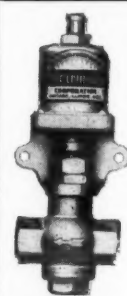


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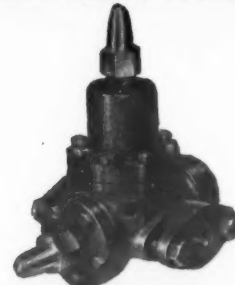
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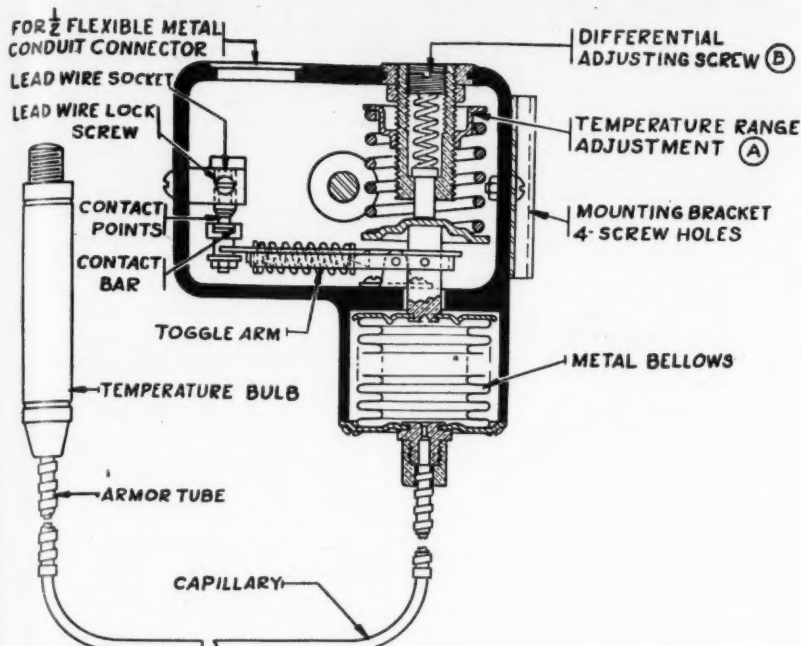


Fig. 5—Operation of this early type adjustable thermostat used by Servel is described below.

## Control Adjustment On Servel Models

(Concluded from Page 22, Column 3)

This condition is fully described in the section on "low side floats" in Manual 1 of the Master Service Manuals. A hook-up similar to Fig. 12B of Manual No. 2 may be used for this purpose.

These Servel condensing units are equipped with the three conventional shut-off service valves, see Fig. 1. The Servel low side float evaporators may be noted in Figs. 2, 3, and 4 and they are fully explained in Manual No. 1.

The thermostat shown in Fig. 5A, does not have an adjustable differential. The entire range may be changed by turning the knurled brass pressure ring screw. The thermostat is factory set to cut in at 28° F. and cut out at 6° F. Turning the adjusting nut clockwise raises the refrigerator temperature and vice versa.

The thermostatic bulb is attached to one of the evaporator tubes on top of the evaporator. The thermostat proper is generally located at the condensing unit.

### ADJUSTABLE CONTROL

Fig. 5 shows another type of thermostat used by Servel. It has an adjustable differential. Turning the differential adjusting screw (B) to the right increases the cutting-in point without affecting the cutting-out point. Turning temperature range adjustment (A) to the right or clockwise, increases the temperature range affecting both the cut in and cut out. The above described Servel systems having a flooded low side float evapo-

urator not equipped with shut-off service valves, using a thermostatic control and having the three standard condensing unit service valves, would be a type 1D system. Therefore, service complaints and operations, as given for a type "1D" system, Manual No. 2, would apply.

Servel household models 23A and 24A differ only in that model 23A is equipped with 8-inch legs while model 24A has 3-inch legs.

The compressor on these models is

## Non-Adjustable Control

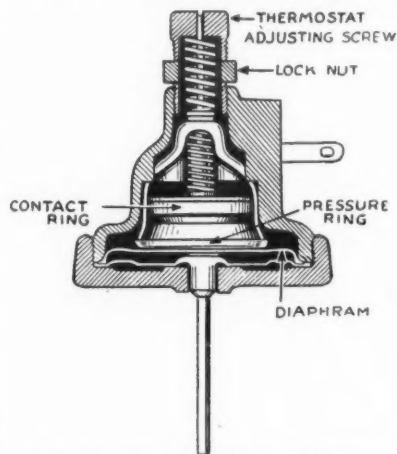


Fig. 5A—Part of the early Servel models were equipped with this control.

the same as used on, and described under models 1-21 and 21A.

They also use the standard Servel low-pressure control, as illustrated in the article on models 1-21 and 21A. The suction line connects to the flare elbow connection in the base of the control. The control is connected by

## Service Operations Given in Master Service Manuals

Editor's Note: This article, written by K. M. Newcum, refrigeration service editor, covers the servicing of the Servel electric household refrigeration models 12A, 12B, 13A, and 14A.

Details are given concerning the way in which the models operate, and the various component parts are described.

Detailed data on earlier Servel models were published in the Oct. 27 issue of the NEWS.

Since the systems used in practically all makes of household electric refrigerators are of one of the general types described in the Master Service Manuals, Mr. Newcum simplifies the problem of describing the service complaints and service operations by referring the readers to those parts of the Master Manuals which cover the service problems and operations for the type of system involved.

Therefore, in order to get the most benefit from the article, the service engineer should have a set of the Master Manuals covering household refrigerator system installation and service.

## Line Connection

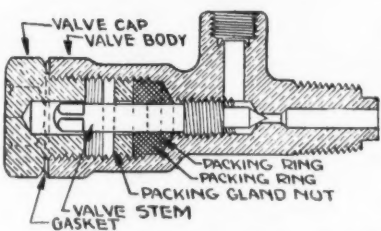


Fig. 8—The Parker-type liquid line connection on the receiver shut-off valve is shown above.

a short piece of tubing to the suction line shut-off valve on the compressor.

The condensing coil is of the radiator type and is located on the compressor base and connected to the liquid receiver by means of a copper line which attaches to the condenser shut-off valve. During normal operation, the condenser shut-off valve is open all the way and capped.

The receiver is fitted with a fusible

## Condenser-Receiver Assembly

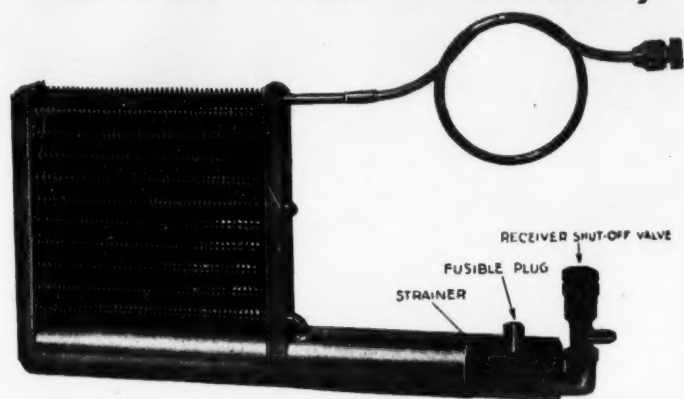


Fig. 7—This assembly consists of a radiator-type condenser mounted on the liquid receiver. The fusible plug melts at 280° F.

metal plug. The liquid line shut-off service valve is same as in types 12A, 12B, 13A, and 14B and has the Parker connection.

The liquid receiver carries a normal charge of 4 lbs. of methyl chloride. The compressor speed is 375 r.p.m. The belt length is 50½ inches. A ¼-hp. motor is used on these two-cylinder models.

With this condensing unit connected to the low side float evaporator not equipped with evaporator shut-off service valves and using the low-pressure control, the resultant system would be a type "1B" and all service complaints and operations given for type "1B" system as described in Manual No. 2 would apply.

## Miniature Motor Built By Alliance Mfg. Co.

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## General Controls Opens New Chicago Branch

CHICAGO—General Controls Co., Los Angeles, manufacturer of automatic temperature, pressure, and flow controls, has opened a new branch office at 450 E. Ohio St. here under the management of H. C. Wasserlein, graduate engineer. Complete stocks and service and engineering facilities will be maintained at the branch.

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## Cross-Section of Compressor

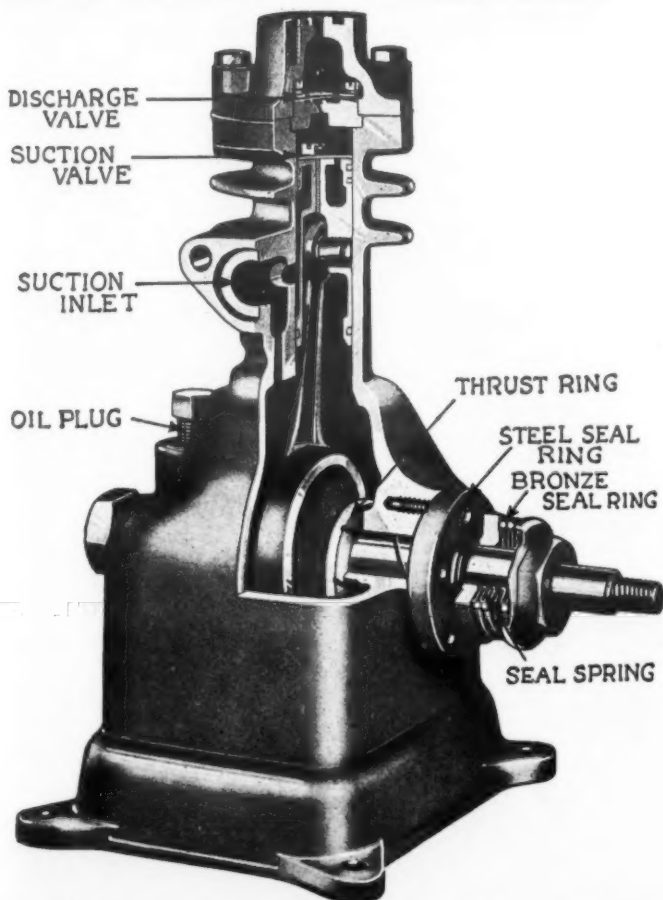


Fig. 6—The above drawing shows the main parts of Servel's eccentric-type compressor using a revolving shaft seal.



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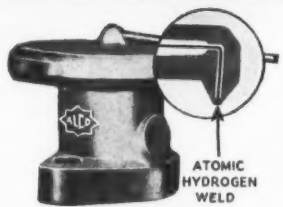
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**810  
OUTSIDE  
ROOMS  
\$2.50  
FROM 2 DAILY  
ALL WITH  
BATH**

## AIR CONDITIONING

### Presence of 'Meta-stable-Oxygen' in Fresh Air Believed Reason for Energy Qualities, Yale Professor Tells ASHVE Section

TORONTO, Ontario, Canada—That the presence of even slight odors in the air of occupied spaces has the effect of diminishing appetite and that a mysterious form of "meta-stable-oxygen," said to be caused by the passage of ultra-violet rays through the air, may impart an "energy state" to the atmosphere which has a favorable physiological reaction and may help scientists in discovering why outdoor air under certain conditions possesses an invigorating quality, was stated here by Dr. C. E. A. Winslow, professor of public health of Yale university, in a recent address before the local chapter of the American Society of Heating and Ventilating Engineers.

"Meta-stable-oxygen" is the name given by research scientists to a little-understood molecular change in atmospheric oxygen caused by the passage through air of ultra-violet rays. The phenomena is believed to be related to the process of ozone formation and is thought to impart to the air an "energy state" that causes a favorable physiological reaction. In other words, the something which gives a lift to the air we breathe.

#### ODORS AFFECT APPETITE

Although asserting, with reference to the new oxygen theory, that "we may be wary of the temptation to hope for too much from this assumption," Dr. Winslow said that in recent years many suggestions have been made as to the possible subtle electro-magnetic influences of the atmosphere and that "it is an alluring hypothesis that some such influence may exist as in dietary hygiene the vitamins have proved of such surprising significance."

In the matter of odors, Dr. Winslow said that their effect of diminishing appetite constituted a phenomena "which has real hygienic significance." Dismissing recent claims that the ionization of air was responsible for an invigorating effect as unproved, Dr. Winslow pointed out that "in the light of existing knowledge it is obvious that 'air conditioning' in the modern sense is something very much more complex than was connoted by the older term 'ventilation.'"

#### AIMS OF AIR CONDITIONING

"Furthermore," he said, "in considering the problems of air conditioning, as in other fields of public health, we should no longer be satisfied with the avoidance of obviously harmful conditions. Health is a positive idea—not merely the art of staying alive. Our aim should be efficiency and fullness and joy of living."

"We should not be content with air free from harmful dusts, fumes and odors and air which is warm enough to avoid chill and cool enough to avoid obvious discomfort and enervation. What we desire is an atmospheric condition which produces an active sense of physical well-being, a state such as is experienced on the mountain top or the sea beach."

#### FUNDAMENTAL STUDIES

"We need much more fundamental studies of physiological reactions before this is possible; but I am convinced that we stand on the threshold of an era in air conditioning in which the pleasure of positive physical satisfaction, and not merely the avoidance of dangers to health, will be our primary objective."

The major problems of air conditioning, said Dr. Winslow, are thermal rather than chemical, or bacteriological or electrical in nature. The fundamental problem is dissipation of the heat produced in the human body, and the four factors which influence this are atmospheric temperature, temperature of the radiant surfaces surrounding the body, air movement, and relative humidity.

The physiological responses to

these four factors are interesting and complex, said the speaker. Recent investigations at New Haven indicated that no simple formula can be found to explain the effects produced.

#### CRITICAL POINT

"There is a critical point at which the body is at equilibrium with its environment, where heat loss by evaporation, radiation, and convection exactly balances metabolism," Dr. Winslow explained. "In a warmer environment there is what we have called the 'zone of evaporative regulation' in which increasing needs for heat loss are exactly balanced by a progressive increase in evaporation, actuated by an extraordinarily delicate physiological mechanism. Up to the point where sweat begins to run off before exerting its cooling power, thermal adaptation in this zone is accurate and complete, but the increased secretion of sweat is—as we have found—accompanied by an increased sense of discomfort."

"Below the critical point of equilibrium the body attempts to adjust by lowering skin temperature. All efforts to reduce heat loss by radiation and convection by such adaptation are, however, imperfect and as a result the body tissues cool. It is obvious, with such a complex system of reactions, that the relative influences of four environmental factors will vary widely at different points on the scale."

#### PROBLEMS TO CONSIDER

"It is clear that such objectives as the above may be attained by various means and cannot, in general, be related to any given amount of quantitative air change. Modern air conditioning must, therefore, take into account the problems of insulation, since heat loss from an occupied space is as important as the heat produced within that space; it must recognize the importance of radiant heat received from or given off to surrounding surfaces, and must consider carefully the newer English systems involving low temperature radiant heating."

### Air Conditioning Used On Two Railroads In India

BOMBAY, India—Air-conditioned railway passenger coaches have been constructed by the Great Indian Peninsula Railway and the Bombay, Baroda, and Central India Railway, two of the leading lines in the country, according to U. S. Vice Consul Daniel V. Anderson.

Five specially designed, air-conditioned first class coaches have been put into operation by the G.I.P.R. on the Bombay-to-Calcutta run, a thousand-mile route across central India.

As an experimental unit, a coach of the B.B.C.I.R. was equipped with air-conditioning apparatus designed to maintain an interior temperature of from 22 to 27° F. less than the outside heat. Cars of this type are intended to be used in the both trains to and from Bombay and on the daily Bombay-to-Delhi run.

Air-conditioning equipment used in the coaches was imported from Europe, almost all of it being of English manufacture.

The potentialities of the Indian market for railway air-conditioning equipment are enormous, considering the volume of passenger traffic and the uncomfortably hot climate, Mr. Anderson says.

India's 14 leading railway companies had 17,850 passenger coaches in use at the time of the latest official census, March 31, 1936, total seating capacities being 35,358 first class, 60,923 second class and about 1,111,000 intermediate and third classes.

### Installation Made in Woman's Store In Denver

DENVER—A complete air-conditioning system capable of delivering five million cubic feet of conditioned air an hour has recently been installed in Neusteter's woman's clothing store located here at 720 16th St.

The installation, according to Meyer Neusteter, president of the concern, makes the store the first in Denver to have complete air conditioning with accurate temperature control throughout its building and is in line with the firm's policy of doing everything possible to make the store the most pleasant shopping place in the world.

The system is so arranged that it can be employed in the heating and ventilating of the store in the wintertime, thus performing all year-around functions.

For space saving reasons, the actual air-conditioning equipment is located in the basement of the store and on the roof of the building, two separate units being employed. From these two units, the air is piped through ducts to the various floors, the basement unit serving the basement and the first floor while the upper floors are supplied from the roof unit. The air is distributed on the various floors through outlets, scientifically placed for uniform distribution without draft.

Design is based upon an inside dry-bulb temperature of 78° when the outside dry-bulb temperature is 95°, although summer temperatures rarely reach 95° in this locality, so that the maximum temperature differential required for comfort is 15° F.

One of the difficulties faced by engineers in making the installation was the problem of how to install the system without interrupting the orderly routine of the store. This, according to Harry H. Herman of Denver, who was employed by the firm as consulting engineer for the installation, was accomplished by having the work done at odd hours when the store was not open for business.

Careful designing and planning, also, were required in order that the interior beauty of the store would be preserved. Neusteter's has beautiful flat ceilings which have no exposed beams, ducts or other disfigurements.

In the basement and on the first floor, additional ducts were added to the old ventilation system which served these floors. On the upper floors, wall ducts which came down from the roof were installed for the new system. The ducts were placed at two sides of the building and are separately controlled so that the temperature of the air which they supply is changed to correspond with the position of the sun.

Each floor is supplied with conditioned air by individual ducts connecting it with the cooling and conditioning equipment so that comfort does not depend upon the spread of air from other floors.

The two compressors for the roof unit, which is responsible for the absorption of the heat from the incoming air, is housed in the elevator pent house. Other heavy equipment such as fans and coils is housed in another pent house which was specially built for this purpose. There is also a cooling tower on the roof, built into the sprinkler system tower.

The cooling tower, which is a space into which water is sprayed to obtain evaporative cooling through contact with uprushing air being drawn in at the bottom of the tank, is connected with water coils (located in the pent houses) for all floors.

The evaporative cooled water, which is collected in a pan at the base of the tower, is pumped into air pre-cooling coils where it, in turn, absorbs heat from the incoming air which is being drawn through the coils. Having absorbed a portion of the heat from the air, the water is returned to the top of the cooling tower to be cooled again. The cooled water from the tower is also used to cool the refrigerating machinery, thus performing a double function.

After being passed through the pre-cooling coils, additional heat is taken from the incoming air by means of the refrigeration compressors which are connected to direct expansion coils, separate coils for each side of each floor being provided.

In wintertime, the tower can be shut off and the rest of the system used for ventilation and circulation of heat. During the heating season the system filters, humidifies and combines the recirculated air with outside air in the proper proportions.

In commenting upon his selection as consulting engineer by Neusteter's, Mr. Herman declared that in his opinion it was advisable for every prospective owner of air conditioning to employ a consultant to determine the design basis and to decide upon the type of conditioning system best suited to solve the particular problems of the installation, because in many instances he avers that the consulting engineer will save considerably more money than the cost of his services.

The Neusteter equipment was made by Westinghouse and the installation was made by the Western Air & Refrigeration, Inc., Los Angeles.

### 5 Installations Are Completed in Houston

HOUSTON, Tex.—Five installations of air-conditioning equipment were made in this territory during September, according to reports of distributors and dealers made to the sales promotional division of Houston Lighting & Power Co.

Two of the installations were of the central station type, and the other three represented sales of unit air conditioners. In addition, one 3-hp. fan installation was made during the month.

Central systems sold during the month included one by Westinghouse in Crown Central Petroleum Corp., totaling 16 tons or 23 hp., and a second installed in the Poll Parrott Juvenile Shoe Store, amounting to 6 tons or 5 hp. and using Carrier equipment.

Unit air-conditioner sales during the month were led by Straus-Bodenheimer, with three applications of Kelvinator equipment; and one job each by Straus-Frank and Perfection-Aire, handling Carrier and Cool-Aire equipment, respectively.

For the first nine months of this year, 156 air-conditioning applications were made in the Houston territory, with 100 of the jobs being central systems and 56 unit room coolers.

**The Distributor Who Sells the**

## Copeland REFRIGERATION LINE

**IS BUILDING GOOD-WILL FOR YEARS TO COME!**

It is just good business foresight to sell your customers a quality-built Copeland product. Whether you sell a Copeland Household Refrigerator, Commercial Refrigeration, Washer or Ironer, you are wisely building up a backlog of long-time customer satisfaction that will pay you dividends in continued patronage or many years.

**Write for Sales Plan**  
**COPELAND REFRIGERATION CORPORATION**  
Holden Ave. at Lincoln — Detroit

**Anaconda Copper**

## REFRIGERATION TUBES

**Unusually Soft!**

**THE AMERICAN BRASS CO.**  
FRENCH SMALL TUBE Branch  
General Offices: Waterbury, Conn.



## MAJOR APPLIANCES

### Double-Tub Washer Is Announced by General Electric

BRIDGEPORT, Conn. — A new double-tub electric washer, with spin-basket, has been announced by the home laundry equipment section of the General Electric appliance and merchandise department.

Complete washer—tubs, base, and legs—is finished in white enamel. Designated as type AW-802, the machine is equipped with a new type of activator, a G-E engineering development designed to wash clothes as individual pieces.

The activator, made of aluminum alloy, consists of three blades, the smooth contours of which begin just above the water line. The washing action draws clothes down through the water, out towards the sides of the tub, and up again to the surface, where the cycle is repeated, preventing tangling and braiding.

Bottom of the spin basket is of die-cast zinc, and the upper section of perforated steel with a four-coat hot-tin finish. The basket rotates at about 870 r.p.m. and is driven by an automobile-type clutch and equipped with an automatic brake. It is especially designed to damp-dry clothes, feather pillows, and blankets, while protecting fabrics and the operator's hands. It has a swivel drainboard.

Washer is equipped with a direct-drive impeller-type pump, which will empty the tub in 2 minutes. The washer tub has a diameter of 22 in., and the edge is protected by a rubber ring. Base and legs are of pressed steel, streamlined.

The 1/4-hp. General Electric motor is spring-mounted and has been sealed in a special lubricant at the factory. A flush tumbler switch controls the motor, and extended levers conveniently located on the washer skirt control the activator and extractor clutch and brake.

Mechanism is composed of steel-cut, precision-fitted gears enclosed in a cast iron gear case. The transmission is direct-driven through a flexible hose-type coupling, and the splash-type oiling system has been permanently lubricated at the factory.

### New Firm Sells Bendix In South Bend Area

SOUTH BEND, Ind.—Appointment of the Great Lakes Distributing Co., South Bend, as northern Indiana and southern Michigan distributor for Bendix Home Appliances, Inc., has been announced by Judson S. Sayre, Bendix vice president in charge of sales.

The distributing company, a new organization, includes in its personnel men who have had wide experience in the home appliance merchandising field. Officers are: J. F. Donahue, president; J. I. Pavay, vice president; A. L. First, sales manager; A. S. Kreuger, advertising and sales promotion manager.

### Frigidaire Range Ideas Result of Survey Of 7,550 Homes

(Concluded from Page 1, Column 4) retail prices, not including installation, being as follows:

Model	Price
L-20	\$129.50
B-20	144.50
L-40	159.50
B-40	174.50
B-60	199.50

Frigidaire's idea of what the public wants in an electric range was obtained in a survey of 7,550 housewives in 34 cities to find out what features they would include if they had the final say-so, according to Frank R. Pierce, manager of the household division.

Questions asked by investigators, Mr. Pierce said, covered the kind of surface unit, the kind of oven, the leg design, the controls, and other features and conveniences the housewives personally desired in an electric range. Results, he continued, showed that:

Eighty-six per cent of the women interviewed preferred a table-top range; 73% preferred all surface units together on one side of the range; 86% preferred switch controls in front; 84% preferred a table-top range with a high oven; 99% preferred a one-piece rustless oven interior.

All of these features have been incorporated into every model in the new range line, Mr. Pierce declares. Complete list of features include:

All-porcelain cabinet; enclosed type cooking units, with three cooking heats and a simmer heat arrangement; a well cooker; silver contact switches; full size oven, measuring 14 x 16 x 18 in.; rustproof oven interior; seamless oven lining; "non-tilt" positive-stop oven shelves; "shelf type" oven door; smokeless broiler; hydraulic thermostat; warming compartment; time signal; automatic time control; one-piece cooking top; one-piece base type design; flush wall top; front opening vent; utensil storage compartment; lamp and condiment jars, enclosed wiring.

A new principle of uniform heat distribution, which eliminates "hot spots" and insures uniform baking, roasting, and broiling, even with the largest loads, is claimed for the ovens of the new Frigidaire ranges. Six loaves of bread, it is claimed, can be baked at one time in the oven. It is said the oven may be preheated to 400° F. in 10 minutes.

Ovens are insulated with glass wool on all six sides, with an extra thick layer at the top to insure a cool working surface on the range.

Surface units of the range are being built by Chromolux to special Frigidaire specifications, and are fully enclosed. The units have an inner and an outer ring, with a circular center disc. No wires are exposed, and the smooth surface is easily cleaned.

On high, inner and outer rings of

## Queen of the Line



The new Frigidaire range in operation. Proper cooking temperatures are maintained through the means of the control panel. The model shown is the B-60, known as the "queen" of the line.

the cooking units heat for extra-fast food preparation; on medium, the center ring alone heats, providing economical operation for small utensils or frying; on low, the unit is said to maintain boiling temperature at a third less current consumption than conventional type units.

Greater cooking economy will be the theme of the merchandising activity which will be put behind the new range, which will be sold nationally through specialty dealerships, department and furniture stores, and utility companies as a "sister" product to the Frigidaire refrigerator.

Outlining dealer opportunities with the new product, General Manager E. G. Biechler pointed out the value of the electric range in leveling sales peaks to give a year-around profitable business. Sales curve of the range, he said, has no great peaks or valleys, but is constantly moving upward as more and more people turn to this modern way of cooking and baking.

Lower electric rates, the desire for modern kitchens, excellence of electric cookery, and other factors are contributing to the electric range's sales increase, Mr. Biechler said.

### Williams Named President of Cincinnati Radio Group

CINCINNATI—Matt Williams of Crosley Radio Corp. was elected president of the radio division, Cincinnati Electrical Association, at the organization's recent annual meeting. Other officers elected are: Willard B. George, Johnson Electric Supply Co., vice president; Stanley Isaac, Auto-Rad Supply Co., secretary, and A. H. Schrage, Fischer-Aeschbach Co., treasurer.

## Bendix Will Issue 'Blue Book' for Trade-Ins

(Concluded from Page 1, Column 5) Mr. Sayre stated. "If necessary, we can get a warehouse and put on our own direct-selling force."

Further to insure price maintenance, a "blue book" of allowances on trade-ins will be issued by Bendix to the retailing dealers, Mr. Sayre said. The book will list models and year of manufacture, but not trade names. Bendix' national organization of sales outlets, he continued, will include 82 distributors and 3,000 dealers, and will be carefully supervised by the company.

Bruno will establish an entirely separate sales organization for Bendix equipment, according to Irving Sarnoff, vice president of the distributorship, and will select dealers to handle the product only after careful investigation of their business character.

### Colonial Markets New Sink Utility Cabinet

PHILADELPHIA—A knock-down portable utility cabinet designed to fit neatly under practically any 42-in. apron sink has been put on the market by the specialties division of Colonial Stove Co.

No changes have to be made in the plumbing to install this cabinet, yet ample space is provided for pots, pans, garbage cans, and all sorts of kitchen gadgets.

## Proper Training of Salesmen Plus Locating Good Prospects Plus Canvassing Enable Range Dealer To Better 1936 Record in Six Months

ROANOKE, Va.—A carefully planned, thoroughly executed, three-point merchandising program was one of the principal factors which enabled Richardson-Wayland Electrical Corp., local electrical contractor and merchandiser, to sell more General Electric ranges in the first six months of this year than it sold during the entire year of 1936.

This range program was worked out by J. M. Richardson, president of the corporation, C. D. Johnston, sales manager, and Miss Alleene Epps, home economist who formerly was with Georgia Power Co. and Appalachian Electric Power Co. The plan consisted of three main divisions: sales training; prospect getting; contests, prizes, bonuses, and other sales stimuli.

Anyone who wants to sell ranges for this company must first attend a series of classes in which Mr. Johnston explains the range's construction. Then this embryonic salesman must go to a series of cooking demonstrations conducted by Miss Epps. Finally he must demonstrate his own ability as a cook, performing under Miss Epps' supervision.

Next, the salesman must learn how to obtain prospects. He finds out that source No. 1 is the company's customer list, and that No. 2 is the dealer's list mailed out by the power company. The third (but no less important) major source is out-and-out canvassing. In addition to these,

there are prospects obtained through all sorts of demonstrations, and those whose names are submitted by company employees.

Sales awards offered by the company to successful salesmen are many and varied. During the summer months picnics and outings are held for those who make their monthly quotas; in winter, quatabusters are treated to dinners and banquets. At Thanksgiving and Christmas, high men in range sales receive fruit cakes which have been baked in General Electric ovens. Cash awards are made frequently. For sport-lovers, contest awards take the form of baseball games or swimming contests. And all of this, of course, is in addition to regular commissions and bonuses.

### Cleveland Cleaner Sales Total 1,278,788 in 9 Mos.

CLEVELAND—Sales of vacuum cleaners by members of the Vacuum Cleaner Manufacturers Association to distributors and dealers totaled 1,278,788 in the nine months ended Sept. 30, an increase of 24.6% over the 1,025,474 units shipped during the same period of last year.

Shipments during the quarter ended Sept. 30 were 354,944 units, against 334,391 in the same period of 1936.

## COLD FACTS

### ABOUT REFRIGERATOR DOOR GASKETS

\*One out of four refrigerators now in use is in need of door gasket replacements. That means hundreds of prospects right in your own community. It's an easy service to sell—not costly—vital to safe, economical refrigeration—and every sale represents a worth-while profit.

As to a dependable source for gasket supplies—let Miller carry

that responsibility for you. You can service 80% of all refrigerators made from the Miller simplified line of 20 gasket types. Complete stocks insure immediate delivery. Order them as you need them.

Here is a wide-open market for wide-awake service men. Why not go after this profitable business in 1937? Get illustrated price list from your local jobber, or write direct.

THE MILLER RUBBER COMPANY, INC. • AKRON, OHIO

**IMMEDIATE DELIVERY**

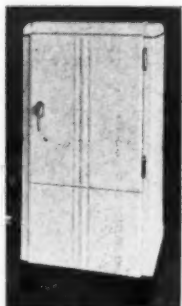
**Miller**

**"Engineers in Rubber"**

## DOMESTIC and COMMERCIAL CABINETS

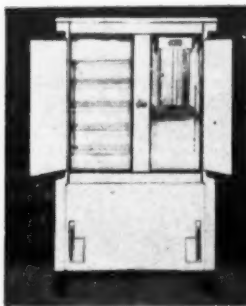
"Built by Midwest"

Midwest offers the most complete line of high grade Refrigerator Cabinets in the United States - - - models from 4 to 66 cu. ft. capacity - - - quality built - - - reasonably priced. Orders shipped the same day received on stock models. (Factory located on main line of Santa Fe and Burlington.) Write or wire for prices and discounts.



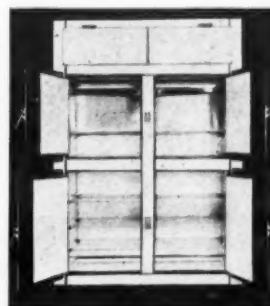
4, 5, 6, 8 Cu. Ft.

Domestic models have all-steel construction, Bonderized Armco metal—Dulux exterior finish—porcelain interior—Balsam Wool insulation—streamlined styling... and many sales-getting accessory features.



11, 13, 16 1/2 Cu. Ft.

Commercial models furnished with porcelain, Dulux or stainless steel exterior—porcelain or Dulux interior—full-length meat doors, or glass doors—all models furnished with or without coils (2-door models with ice cube evaporators).



22, 25, 27, 44, 66 Cu. Ft.

**MIDWEST STAMPING & ENAMELING COMPANY**  
CALUMET, ILLINOIS



## 'Town of Tomorrow' Being Planned for N. Y. Fair

NEW YORK CITY—"The Town of Tomorrow," a full-scale model village demonstrating what industry, science, and art have made attainable in respect to the comfort, convenience, and beauty of the home, is being planned as an exhibition for the New York World's Fair in 1939.

The community, representing a segment of a town of 3,500 population, will cover 10 acres of ground, cost in excess of \$1,500,000, and include 30 to 35 houses and group houses, a community arts center, a nursery school, a playground, and stores.

Houses will range in size from four to 10 rooms, in reproduction price from \$3,000 to \$15,000. Equipment and furnishings will be in keeping with the cost of each house. Schedules will be prepared for each house to show the cost of reproduction in various parts of the country.

Shown in the homes will be the latest in refrigerators, vacuum cleaners, kitchen utensils and equipment, radios, bathroom fixtures, floor coverings, and the devices for lightening home drudgery. Latest styles in draperies, rugs, window shades, wall paper, furniture, decoration, and color combination also will be displayed.

Present plans call for 21 detached houses, three sets of group houses, a two-story walk-up apartment building containing eight apartments, and an elevator apartment house also with eight units. The latter will be carried up two stories, but will represent a higher building. Several of the smaller houses may be of the pre-fabricated type.

Houses will be Fair-designed and Fair-built, with manufacturers contributing materials and furnishings and sharing the cost. Instead of buying ground space or interior exhibit space in the Fair, these companies will buy parts of these model homes as a means of displaying their products.

## THE BUYER'S GUIDE



### BARE COMPRESSORS and COMPLETE UNITS

All types for service replacement and new installations... One, two and four cylinder models from 1/4 h.p. to 20 h.p. For Sulphur Dioxide, Methyl Chloride or Freon. Write for new catalog—a valuable reference for assemblers and service companies.

**MERCHANT & EVANS COMPANY**  
Philadelphia, Pa., U.S.A., Plant at Lancaster, Pa.

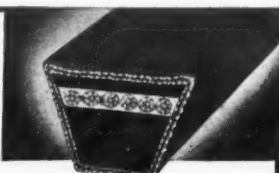
## GO TO Gilmer

Service More Units • Make More Money

Sell the belt that fits the job

Jobbers everywhere

**L. H. GILMER CO., Tacony, Philadelphia**  
"THE OLDEST FIRM OF RUBBER FABRIC BELT SPECIALISTS"



**FREE**

120-page Catalog  
Pocket Size—Fully Indexed  
Makes it easy to  
find the belt you want  
Get copy today

## Seepage-Proof FITTINGS

"Built Right to Stay Tight"

Every style and size of forged flared tube fitting for the refrigeration industry is available from standard stock at Commonwealth.

Thousands of semi-standard patterns enable us to quickly furnish any desired variation in pipe and tube ends.

Special fittings made to order.

Commonwealth fittings are correctly designed, carefully machined, and tube seats are protected in shipping.

25 years of service to the industry.

**COMMONWEALTH BRASS CORPORATION**

Commonwealth at Grand Trunk R. R.  
DETROIT, MICH.

## PEERLESS SYNCHRO-FAN UNIT COOLER

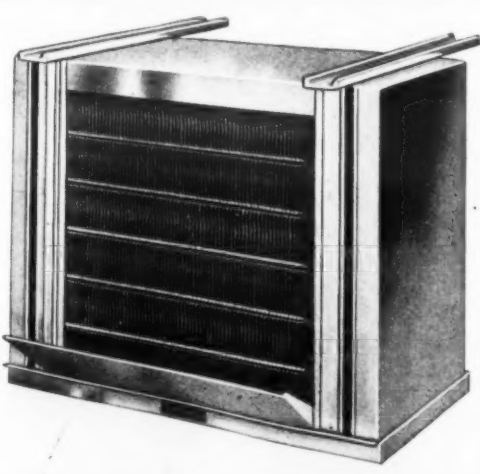
Force Draft Refrigeration With High Humidity

When Peerless introduced the "Synchro-Fan" Control on Unit Coolers another refrigeration myth was exploded. Meats and fresh produce are now being successfully preserved by Peerless Unit Cooler refrigeration—WITHOUT EXCESSIVE DRYING OUT OF STORED PRODUCT—because these "Synchro-Fan" units DO maintain high humidity.

Here's the secret: when the compressor is "on" the fan motor runs at full speed. When compressor is "off" fan motor does not shut off but runs at half speed. A gentle air movement is maintained through the coil and cooled compartment, preventing air stratification and picking up the condensate on the coil. Thus, the proper portion of the moisture removed from the air is absorbed into it again during the compressor "off" cycle.

**PEERLESS of AMERICA, Inc.**

ESTABLISHED IN 1912 AS THE PEERLESS ICE MACHINE CO.  
Main Factory—General Offices  
New York Factory 43-20 34th Street  
Long Island City  
Pacific Coast Factory 3000 S. Main Street  
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PEERLESS JOBBERS IN ALL PRINCIPAL CITIES



BUY PEERLESS FOR PERFORMANCE

## SERVICE METHODS

### Suggestions Sought on Ways of Obtaining Better Temperature Control in Meat Display Cases in Various Seasons

BY K. M. NEWCUM

EVER heard a meat market owner exclaim, "My meat keeps fine during the mild days of spring and fall, dries out in the summer and is too wet in the winter," and then have him ask you what causes it—why the meat doesn't keep the same the year around when the temperature in the refrigerator is always the same?

It's a tough question to answer, especially if the market owner has installed the most modern refrigeration equipment that money can buy.

#### 7% SHRINKAGE NORMAL

The butcher figures his meat profits or losses on a shrinkage basis. The average shrinkage allowance is 7% per week. Some figure more or less depending on turnover, etc. If his supply can be turned over in one week he comes out with his normal margin.

However, if his meat must hang in the cooler for a longer period, more shrinkage loss is taken (trimming is generally included as shrinkage). Therefore, if during certain seasons the shrinkage percentages run higher than others, the butcher is bound to ask why such a condition prevails.

#### TEMPERATURE DIFFERENCE

The reason for different seasonal refrigerator conditions is mainly a result of different seasonal temperature conditions. In estimating the B.t.u. load of a refrigerator an outside (store) temperature of 80° is usually selected. With an inside (refrigerator) temperature of 35° the temperature difference is 45°. Taking a heat leakage factor for the particular refrigerator (depending on insulation, construction, usage, etc.) with a 45° temperature difference a certain size coil and compressor is selected. Assume the condensing unit is figured for 16 hours running time when the store temperature is 80° (temperature difference 45°).

During normal summer weather conditions (80°) the system operates 16 hours per day and maintains the proper temperature, circulation, and relative humidity as originally figured. What happens when the store temperature goes up to 90°, 95°, or 100° as it sometimes does in many parts of the country? The capacity of the equipment is fixed. To maintain the desired inside temperature (35°) it will run longer, perhaps 20 hours a day.

#### MORE DEHYDRATION

The increased running time of the condensing unit results in a lower average coil temperature for this higher temperature period. The lower coil temperature results in lower relative humidity and increased dehydration (shrinkage). When the store temperature drops back to 80°, and the running time back to 16 hours, normal refrigerator conditions will prevail.

The reverse of this condition exists in the winter time. Many merchants supply little or no heat to their

markets. Assume the store temperature drops down to 50°. The temperature difference is then only 15°. The equipment is designed for 45° temperature differential.

Obviously the running time is materially reduced. Result is that the average coil temperature and relative humidity is higher and the rate of circulation is slower (gravity connection coils).

#### ODOR VAPORS ABSORBED

The odor vapors which come to the surface of meat under normal conditions are absorbed in the circulating air. With the higher relative humidity, hence higher vapor pressure, the odor vapors (moisture) remain on the surface of the meat, resulting in discoloration, slime, and excessive tanning.

The ideal condition would be one where the store temperature is maintained at a constant degree the year around. The system could be engineered to this ideal condition and excepting the slight differences between outside relative humidity in winter and summer, the refrigerator condition would remain ideal through all the seasons.

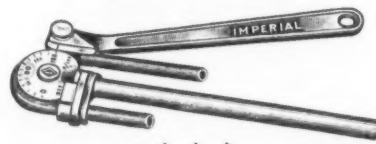
#### RELOCATION OF BULB

Where this ideal condition does not exist (and this includes many of the markets) the system could be figured for the maximum outside temperature conditions, or the greatest possible temperature differential. Then as outside temperature decreased the thermo bulb could be relocated to cut out a portion of the coil surface in an attempt to maintain a closer balance between heat leakage and heat absorbing surface. Or in the winter time, one of the coils might be cut out entirely.

Relocating the thermo bulb, or increasing the superheat of the valve, would necessitate a lower low pressure control setting to keep the machine running for longer periods during cold weather.

This is a problem that is causing no end of expense and worry to service men. Your suggestions on how to correct this condition or experiences on how you may have licked the problem will be welcomed.

#### Tube Bender



### Imperial Markets New Tube Bender

CHICAGO—Imperial Brass Mfg. Co. has brought out a new one-piece, open-side tube bender, designed to slip over tubing without adjustments or threading, and make bends at the ends or any part of the tubing.

The tool is available in different sizes to fit tubing of from 3/16 in. O.D. to 3/4 in. O.D., and can make bends of any angle up to 180°, the company states. Bending form is calibrated to show degree positions and simplify the making of duplicate bends at any desired angle.

Prices of the bender, which is made of steel, range from \$2.95 to \$3.75.

#### Hawkins Heads Sales for Pacific Conditionaire

CHICAGO—Appointment of Ralph L. Hawkins, formerly assistant sales manager, to the post of sales manager of the air-conditioning division of Pacific Mfg. Co., manufacturer of Pacific Conditionaire unit conditioners and Airvent air filters and circulators, has been announced by Fred C. McClellan, president.

## Unit Heater Used in Conditioning System

ENID, Okla.—An air-conditioning system employing a standard gas-fired unit heater in connection with the conditioning unit has been installed in Klein's Dress Shop by Natkin & Co., Westinghouse distributor with headquarters in Kansas City.

Bert Natkin, of Natkin & Co., believes that the method used in this installation offers an inexpensive solution for small installations where year-around conditioning is required.

#### COMPONENTS OF UNIT

This unit, located in the basement, consists of an American Blower fan and motor, a Fedders refrigeration coil and valves, and Detroit Lubricator self-cleaning spray nozzles controlled by a solenoid valve in connection with a hygrostat located on the sales floor.

Behind this unit is placed a Bryant gas-fired unit heater which is operated from the thermostat on the main floor. A standard gas-fired unit heater is encased in the conditioner housing in such a manner that return air passes through the heating unit and thus is warmed to the temperature called for by the thermostat.

#### HOUSING CONSTRUCTION

The housing is constructed so that the gas valve, burner, etc., are outside the housing proper in order to facilitate servicing, and so that the gas itself does not come in contact with the air passing through the unit.

The fan with which these unit heaters are equipped was removed, as a larger blower was installed for year-around air distribution.

A hand damper was installed adjacent to the Bryant unit heater so that in summer, when more air is necessary for conditioning, the damper may be opened to provide practically three times the free area for passage of air. Behind this unit heater, a bypass damper equipped with throw-away type filters was installed. Behind this was placed the mixing chamber in which outside air is mixed with return air.

#### WESTINGHOUSE COMPRESSOR

The air is introduced into the room through ceiling plaques and returns through cast bronze grilles located in the floor.

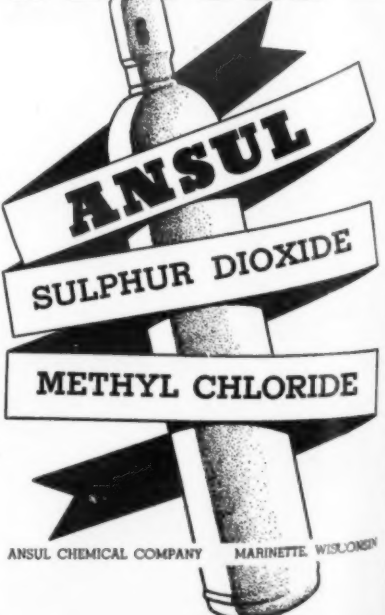
A 5-hp. Westinghouse compressor was installed to furnish the required amount of refrigeration. Because water is fairly expensive in this territory, an evaporative condenser was set up with necessary intakes and exhaust ducts attached.

Mr. Natkin reports that a similar installation was made for the offices of Bleecker Mfg. Co., Tulsa, Okla., manufacturer of Zero Hour bombs.

### Standard Conditioning Service Station to Open in Cleveland

CLEVELAND—Standard Air Conditioning, Inc., a division of American Radiator & Standard Sanitary Corp., New York City, has leased 2,300 sq. ft. of space at 4500 Euclid Ave. here for a sales and service division for northern Ohio. Roger E. Allen has been named branch manager, and will head a staff of 16 employees.

## SPECIFY



ANSUL CHEMICAL COMPANY MARINETTE, WISCONSIN



## INSTALLATION METHODS

### Proper Installation of Vibration Absorber Necessary to Control Transfer of Noise

BY K. M. NEWCUM

VIBRATION and noise impulses set up by condensing units and carried via the refrigerant and water lines through the building are often objectionable. The objectionable noises may be overcome by the proper application of a vibration absorber such as illustrated in Fig. 1.

In household and small commercial refrigeration systems where soft copper tubing is used as the refrigerant lines, a loop or series of loops in the lines near the condensing unit is an accepted means of absorbing vibration.

Hard drawn copper tubing or pipe, which is used almost exclusively on larger commercial and air-conditioning systems, presents a more difficult vibration problem because of its rigidity.

The cut-away section of the Rex Vibra-Sorber (Fig. 1) reveals the internal construction. The annular corrugations represent to a refrigeration man the bellows of a stuffing box seal.

The corrugations are deep to assure resistance to fatigue under constant flexing and vibration. The "bellows" is welded into solder-type fittings of a size to slip over nominal size copper tubing for soldering into the line.

Note that the corrugations are protected by a metal braid over the entire outside surface. Purpose of the metal braid is obviously to protect the bellows from mechanical injury.

It also serves a second function of limiting the movement of the bellows to within safe limits, to prevent breakage from strain.

The limiting factor of the metal braid must be taken into consideration when installing the vibration absorber, in either a horizontal or vertical position.

As a typical example the 7½-hp. York condensing unit (shown in Fig. 2) is used to provide summer air conditioning in the front part of the AIR CONDITIONING AND REFRIGERATION NEWS offices. The vibration from the condensing unit was being transmitted to the coils and air ducts, thence through the building.

The noise was objectionable and a vibration absorber was installed in the main suction line as was noted in Fig. 2.

At the time the absorber was installed no consideration was given to the flexible limitations of the metal braid. A considerable portion of the noise was eliminated, but rumbling noises were still noticeable during quiet periods.

Upon investigation it was found that when a section of the suction line was cut out to provide a space for the vibration absorber the distance between the two ends was slightly short. Result was that with the absorber installed and the suction line back in position the metal braids were jammed and held tightly

#### Installation

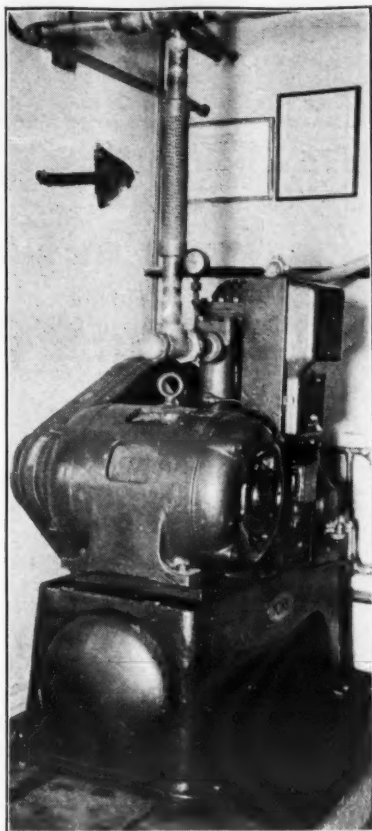


Fig. 2—Arrow points to Vibra-Sorber installed on York Freon compressor at Business News Publishing Co.

together. The flexing ability of the corrugations was limited, and much of the noise was being carried onto the suction line through the solid mass of the jammed metal braid.

To overcome the condition the suction line was raised slightly until by observation the absorber was vibrating noticeably near the bottom and up part way, but ceased near the top. By lowering and raising the suction line alternately to jam and

low steam pressures existing near the start of the burner firing cycle, and replaced with a valve having a smaller port opening after the steam pressure has risen somewhat, operation obviously should be quite satisfactory.

In effect this is what the new Detroit Lubricator quick vent valve is said to do, for these large port valves are said to vent at maximum port opening until the pressure rises to approximately 2 ounces and then automatically revert to a port opening proper for normal pressures. This eliminates the need for a large float, an increase in valve size, and at the same time removes the hazard of large port venting at normal steam pressures.

This system includes the Arco-Detroit No. 300 multiport for radiators and the Arco-Detroit No. 861 hurricane for mains.

The No. 300 multiport for radiators carries a manual adjustment which reduces its maximum port opening by any amount needed to compensate for the size and location of the radiators. Thus venting throughout the entire system may be balanced. But the use of this adjustment does not affect in any way the operation of the automatic modulator. It remains effective on all valves at all times.

Unlike other valves, the adjustment on the multiport is said to be proportional to the movement of the adjusting arm. If the arm is moved through half its arc, port area is reduced just half of maximum. If one quarter of port area is desired the indicator is moved to that point on the scale.

Attempts have been made repeatedly to build such a large port valve that would be practicable mechanically and commercially adaptable. The difficulties, however, are not easily disposed of. On the basis of the ordinary air valve design, increasing port area necessitates a proportional increase in the size of the float in order to maintain tight closure against water. This, in turn, automatically increases the size of the valve body to a point where it becomes unsightly, and it further increases the cost of the valve to a point where it becomes commercially prohibitive.

Although serious, these obstacles are by no means the only ones to large port valve design. Venting as boiler pressure rises gradually from zero on the gauge presents no difficulty for the large port valve. But when a cold radiator is opened to full operating pressure, the situation takes on quite a different aspect. Then a large port may be a decided detriment, for it may cause short circuiting of the steam, leaving unvented air in the radiators.

If a vent valve with a large port opening could be used at the very

#### Cutaway View of Vibration Absorber

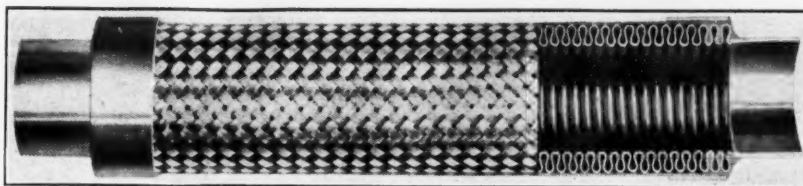


Fig. 1—Rex Vibra-Sorber with cover cut-away to show bellows construction.

then loosen the metal braid, the effect was very noticeable by touching the suction line on both sides of the absorber with the compressor running.

A study of numerous compressor installations by Chicago Metal Base Corp. indicates that they fall under two general classifications as follows:

No. 1—Where horizontal motion is excessive, but where vertical motion is so slight that it is disregarded. Under this classification the horizontal motion of the compressor is

transferred into radial motion by the vertical mounting of a single vibration absorber in the refrigerant and water lines.

No. 2—Where both vertical and horizontal motions are such that they must be compensated for to obtain satisfactory noise reduction.

Under the second classification the rolling and pitching of the compressor, resulting from starting and stopping or from off-center motion during operation is such that a combination vertical and horizontal absorber is required.

## THE BUYER'S GUIDE



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### Detroit Lubricator Air Vent Valves Are Designed for Use with Automatic Equipment

DETROIT—Designed especially for use with modern automatic heating and said to eliminate difficulties of venting entrained air from the steam heating system of the automatic variety, is the new line of quick action air vent valves recently announced here by the Detroit Lubricator Co.

Obviously, the venting of air from the piping system of the modern steam heating or air-conditioning plant is a problem much more difficult of solution than was the release of air from the old fashioned hand-fired coal-burning steam heating system, because of the "cycling," or "on-and-off" operation of automatic equipment as compared to the more uniform combustion rates prevailing under manual firing.

With the hand-fired system, an air vent valve that could relieve the system of air in the course of a half-hour or so generally was acceptable because once the required steam pressure was reached and the system freed from air, the operation of and pressure on the system were maintained practically constant for hours, being varied slightly only as required to meet gradually changing outside temperatures.

However, automatic burners generally being either of the "on-and-off" or of the "high-low flame" variety operating at or near maximum capacity when they are in the "on" cycle, overheating can be avoided (except perhaps in extremely cold weather) only by operating the burner at or near full rating for short periods, alternating with "off" periods of non-operation between.

Since such on-and-off operation tends to result in fluctuating room temperatures in step with the cycles of operation, the maximum and minimum room temperatures can be held within the allowable range of fluctuation only when the on-and-off cycles are short and oft repeated, perhaps at a rate of two or three complete cycles per hour.

Because the cycle of operation is oft repeated, and since the air must be vented from the system at each cycle, the air must be vented in the minimum of time.

It frequently has been conceded that the basic approach to this problem of quick venting for automatic

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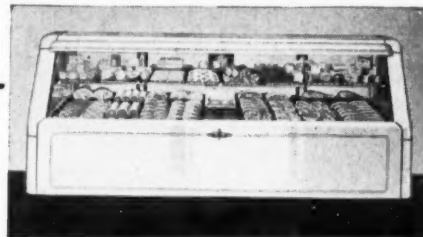


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### 3 Westinghouse Units Used in Conditioning Chicago Theater

CHICAGO—Three 25-hp. hermetically sealed Westinghouse condensing units comprise the cooling equipment used in connection with the year-around air-conditioning system installed by Kroeschell Engineering Co. in the Cine theater, new unit in the Balaban & Katz Theater Corp. chain. Each of the condensing units is connected to a 25-hp. gas cooled motor.

The theater's boiler room is located on the second floor level, directly above the lobby; the fan room and refrigerating units are located on the third floor, over the boiler room.

Total refrigerating capacity of the three units is 70 tons, based on 75° F. temperature of condenser water, and 42° F. suction gas temperature. The theater seats 1,000 people.

Cooling coils are of the copper fin type, designed for direct expansion

using Freon as the refrigerant. Control is of the push-button start and stop type, fully automatic; all controls are synchronous with the box office.

Fan used is of the variable speed type, designed for quiet operation, and has a capacity of 27,000 c.f.m. Air distribution is of the overhead type, with the air being introduced through special ceiling plaques.

### Cooney to Build Own Line Of Winter Conditioners

BUFFALO—Cooney Refrigeration Co., Inc., has purchased a factory building here from Buffalo Weaving & Belting Co. for the manufacture of Coreco boilers and winter air conditioners. The building has 24,000 sq. ft. of floor space and will house offices as well as manufacturing operations of the company. Officials of the new firm are Edwin R. Cooney, president, and Charles G. Duffy, Jr., treasurer.

## AIR CONDITIONING INSTALLATION

### Installing Special Supply Outlets Is Trick in Conditioning Old Residences, Says Engineer

By Robert Levy, Engineer with G. A. Nichols, Inc.  
Delco-Frigidaire Dealer, Oklahoma City

**P**ROBLEMS of year-around air conditioning of old houses are ones which present special difficulties for the air-conditioning engineer.

As a rule, in the southwest, as well as in many other sections of the country, the engineer will find in the existing residence a round gravity furnace with the duct distribution system installed with round pipe and typical large baseboard registers.

Inasmuch as the cost will in many cases determine whether the owner will buy air conditioning, it will seldom be feasible to tear into

the side walls on the first floor and locate the supply grilles on the side walls; or carry a large supply duct to the attic for distribution to the second floor rooms with side wall registers.

#### MAKE FEW CHANGES

In these cases, therefore, the problem of the engineer is to make use of the existing distribution system with as few changes as possible. Therefore, he must:

(a) Design a good workable system which will provide comfort and live up to design conditions, without causing drafts of cold air.

(b) Make the installation in such manner that the fewest possible changes need to be made in the furnace and distribution system, thereby keeping down the cost of the installation.

Following is the description of one such installation:

This installation is functioning in an entirely satisfactory manner; and in the writer's opinion, this same method may be satisfactorily used (with variations to fit the particular case) in the great majority of old houses.

Of course, it will often be found in the case of large rooms that an extra supply duct and register must be installed or the location of the return register changed; but the general method of distribution will apply.

#### CHANGED SUPPLY GRILLES

Essentially this method of air distribution consists in using the existing supply and return ducts in the house to be conditioned; but taking out all supply registers and replacing them with registers and register boxes specially designed to throw the cold conditioned air to the ceiling at the proper angle and in correct volume for the respective room, and at the correct grille face velocity, to cause ceiling diffusion of the cold air over the entire room without precipitating cold drafts.

The house in which the installation was made is a one-story bungalow, with seven rooms and one bath. The seven rooms include kitchen and breakfast-room which open into each other through an archway, but which are not included in the conditioned space.

The house is about three years old, of brick veneer construction with gable roof and wood shingles. The ceiling was not insulated. The base-

ment in which the furnace is located occupies the space below the dining room.

#### SAVINGS BY INSULATION

When making the cooling load estimate, it was found that a saving of approximately 14,000 B.t.u. could be effected by insulating the ceiling with 3½ inches of a good grade of rock wool. This recommendation was made to the owner and adopted by him.

Side wall insulation would have saved 4,500 B.t.u.—but it was decided the advantages resulting from side wall insulation would not warrant the necessary expenditure. With the ceiling insulated, the total sensible heat gain amounted to 31,305 B.t.u.

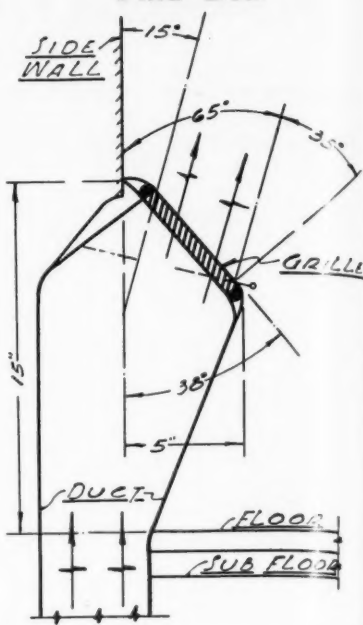
The total latent heat gain amounted to 4,750 B.t.u.—making a grand total heat gain of 36,055 B.t.u.—with design conditions as follows:

Outside		Inside
100	dry bulb	80
76	wet bulb	67
	relative humidity 50%	

A coil with sufficient capacity to handle the latent and sensible load was selected along with a 3-hp. condensing unit. As only an expansion valve was used, and no solenoid, the thermostat in the conditioned space takes direct control of the compressor.

The cross section of the basement furnace room layout (Fig. 1) shows the location of the coil (resting in

Fig. 2—Register Setting  
And Box



drain pan), with the filters above and blower on the floor below—placed in the cold air return duct to the furnace.

In the summer the cooled, conditioned air is blown through the furnace, and into the regular distribution ducts to the various rooms—each duct equipped with splitter damper to allow balancing of the system. A fresh air duct to the outside was installed, with damper control for ventilation purposes.

The round furnace was well insulated with two heavy coats of asbestos cement. In operation it was found that the temperature loss through the furnace was 1°.

Temperature of the air stream leaving the coil was 63°, and leaving the furnace through the ducts, 64°. The ducts were not insulated, and duct temperature loss amounted to 2°, as the air stream at the room supply registers showed a reading of 66°. The total loss in temperature from the coil to the supply registers amounted to 3°.

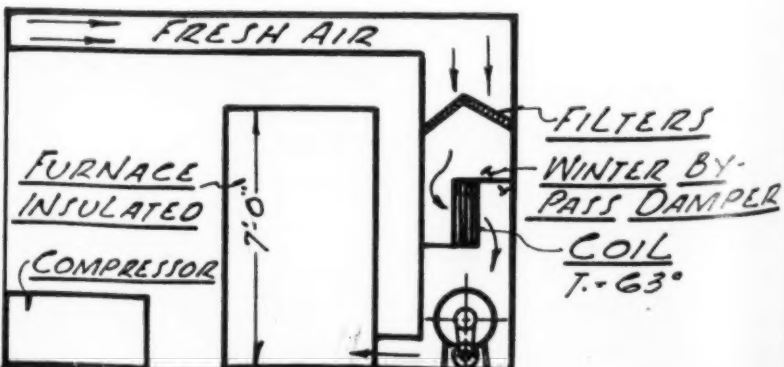
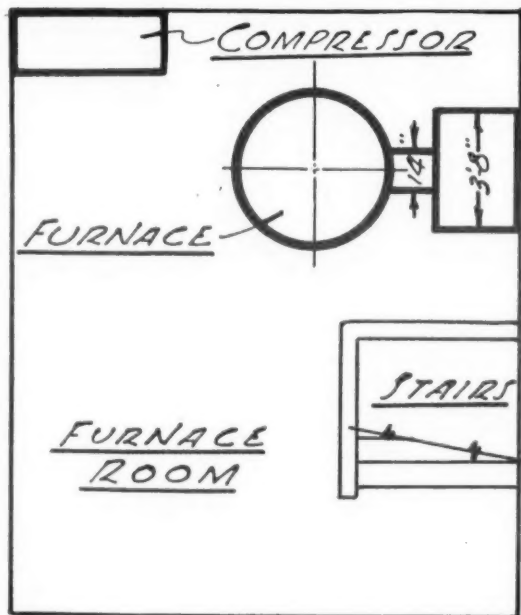
#### SUPPLY OUTLET DESIGN

In this particular house the return grilles were found to be adequately sized and were not touched at all.

The gravity type supply register in the baseboard was taken out in each room and replaced with a directional type register, of proper size for each room, with a vane deflection of 35°, and built into a sheet metal register box, at such an angle that the emerging cold conditioned air is directed to the ceiling in a narrow band, at approximately 75° from the horizontal.

(Concluded on Page 29, Column 1)

Fig. 1—Equipment Layout in Basement of Residence



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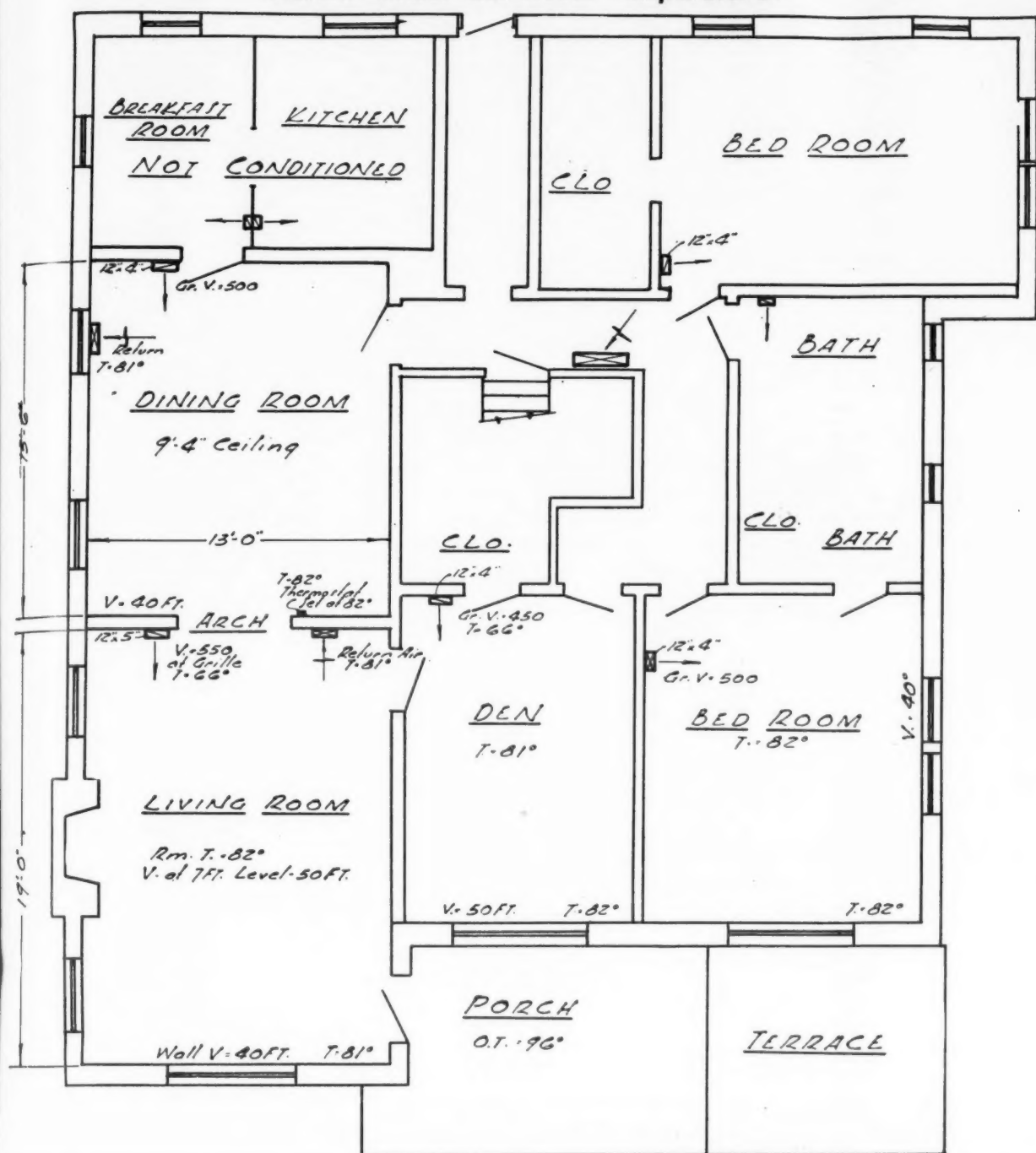
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Fig. 3—Floor Plan of Residence Showing Air-Conditioning Supply and Return Grilles and Room Temperatures



## Special Grille Arrangement Used to Supply Conditioned Air to Residence

(Concluded from Page 28, Column 5)  
The cross section of this register setting and specially made register box in Fig. 2 shows this alignment plainly.

A return type of register was selected for this installation, as the deflecting angle of 35° is greater than was obtainable from a supply register (30°).

### SUPPLY TYPE REGISTER

However, the writer believes it advisable on future similar installations to use a supply type register (even though the deflecting angle is a few degrees less) on account of the diffusional characteristics of the supply register vanes, and the higher face velocity permissible. The desired angle of the emerging conditioned air may be obtained by varying the design of the register box a trifle.

The installation was designed for a register face velocity of 550 f.p.m. and design condition was met under actual operation, closely enough for practical purposes. Changes in damper settings and blower delivery c.f.m. could easily be made to maintain design conditions almost exactly, but this was not thought necessary as the entire system is working very nicely, and giving complete satisfaction.

### BEST FACE VELOCITY

However, to meet the majority of conditions which will arise with this method of distribution, the writer believes a register face velocity of 650 to 700 f.p.m. will give best results in most cases. Generally speaking, it appears that the higher the face velocity at the register, the better will be the results obtained from this type of distribution, always keeping in mind, of course, that the noise level must be kept to a point which is not objectionable. However, further data of actual installations will be needed to confirm this theory.

After this air-conditioning system had been in operation for several weeks, check readings of temperature and air velocities were made

throughout the house. Velocity readings were made with a velometer. The outside temperature at this time was 96° F. The thermostat in the house was set for 82°.

### POSITION OF READINGS

All temperature and velometer readings were taken at breathing level (except the readings at supply and return registers, which were taken at the registers). Readings of both temperature and air velocity were taken at approximately the locations recorded on the drawing attached. It was found that the temperature did not vary over 1° in any part of the house in the various rooms.

Air velocities were found to be 40 to 50 f.p.m. throughout, and this was true at points close to the walls farthest from the supply registers. No cold drafts were created.

### LIVING ROOM PROBLEM

The cooled, conditioned air from the supply registers near floor level traveled to the ceiling in a narrow band—and a person standing 2 feet away from the supply register detected no draft. The most severe test for this type of air distribution is in the living room (19 by 13 feet) which has but one supply register at the end of the room at baseboard level, and one return register on the same wall, near the other side of the room. This arrangement is shown in Fig. 3.

Emerging air velocity at the register in this room was found to be 550 f.p.m. Two temperature readings in this room, one in the center of the room and one at the south wall 19 feet from the supply register were found to be 82° and 81° respectively. Velometer reading at the center of the room at 7-foot level gave an air velocity of 50 f.p.m., while a reading taken along the south wall of this room, farthest from the supply register showed an air velocity at this point of 40 f.p.m.

The writer is of the opinion that no better distribution results could have been obtained in air condition-

ing this house—if the supply registers had been changed to 7 feet levels on the side walls—either by tearing into the side walls to make the change—or by carrying a large supply duct to the attic, and dropping down between the studs into the side walls for each room. However, either of these methods would have involved considerable expense, with improvements negligible if any, in the writer's opinion.

## Conditioned Apartment Being Built in Washington

WASHINGTON, D. C.—Construction of what is said to be the largest completely air-conditioned apartment house in the United States is underway in the Wesley Heights section here. The building is being constructed by Gustave Ring, young multiple-dwelling operator who was one of the pioneers in this field.

Year-around conditioning will be supplied by Carrier units using cold water as the refrigeration medium installed in the bedroom and living room of each of the building's 125 apartments. These units will be equipped with individual controls, to enable each occupant to regulate the air in his own apartment.

All room conditioners will be connected to a central heating plant and a central cooling plant located in the basement. A Carrier evaporative condenser will be installed.

## Galson Leaves De LaVergne To Join Research Staff Of Carrier Corp.

SYRACUSE, N. Y.—Henry L. Galson has resigned his position as product and sales engineer of the De LaVergne division of Baldwin-Southwork Corp. to join the research staff of Carrier Corp.

Mr. Galson had been with the Baldwin-Southwork company since 1932, before which time he had been associated with Proctor & Schwartz, Inc., Philadelphia; Bentz Engineering Corp., Newark; Cooling and Air Conditioning Corp., New York City, and Philadelphia Drying Machinery Corp.

In 1933 he was awarded the John Scott medal by the city of Philadelphia for the design and development of the De LaVergne air-conditioning apparatus. He designed and developed one of the first self-contained air-conditioning units for homes and offices in 1932, and soon afterwards developed a railroad car air conditioner on similar principles of design.

## 21 Air-Conditioning Jobs Sold in Oklahoma Area

OKLAHOMA CITY—Twenty-one air-conditioning sales were reported to the commercial department of Oklahoma Gas & Electric Co. during August by distributors and dealers for air-conditioning equipment in this territory, to bring the total for the first eight months of 1937 to 174, an increase of 32% over the same period of last year.

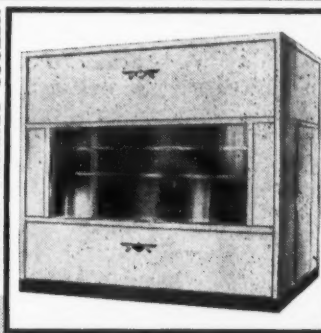
In addition, a number of air washer and miscellaneous cooling equipment sales were made.

## 24 Rooms of Miami Hospital To Be Air Conditioned

MIAMI, Fla.—Miami Retreat, mental hospital here, has purchased a 10-ton Model ECM-1000 Servel air-conditioning unit, and evaporative condenser to condition 24 of its rooms, according to Rex C. Snell, president of Snell Engineering Co., Servel distributor in this territory.

## THE BUYER'S GUIDE

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## REFRIGERATED EQUIPMENT

Our 1937 line offers extraordinary profit opportunities for refrigeration dealers. Your opportunity for sales to meat markets, food stores, restaurants, bakeries, etc., is greatest with the SHERER line. Write for details about the Sherer Case and Cooler Franchise... there are still desirable territories available.

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MARSHALL, MICHIGAN

DISPLAY AND STORAGE EQUIPMENT FOR RETAIL FOOD STORES

## The Real Heavy Duty Refrigerator!

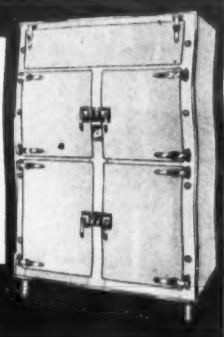
MODEL 354—the beautiful Heavy Duty Refrigerator for lunch rooms, schools, hospitals, hotels, etc., combining GREATER CAPACITY, beautiful finish and Heavy Duty Construction.

This Refrigerator is built in sections, and may be supplied in various door combinations and shelf arrangements to meet your needs. A real Heavy Duty Refrigerator—sturdy, beautiful, enduring!

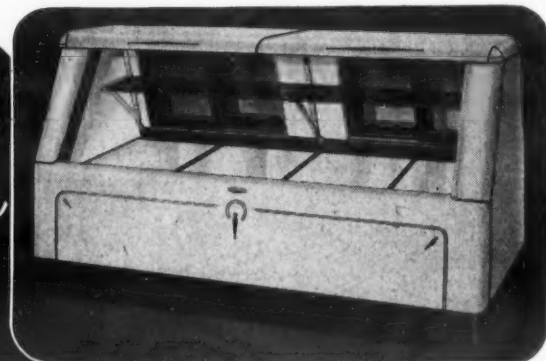
White porcelain finish, fused on 18 gauge special steel, bronze chromium finish hardware, and 3" corkboard insulation. Also available with oak exterior and galvanized interior.

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# NEW Percival Streamliner!



Distributors Wanted!

Write for details of Profit-making franchise. Complete PERCIVAL line meets every requirement of the modern food store.

Modern styling... Beautiful design... Outstanding construction... Economical operation! TOMORROW'S case, presented TODAY! Get the jump on other distributors by selling this modern marvel of electrical refrigeration. Its NEW style and NEW features give you exclusive selling advantages! NEW PERCIVAL FINANCE PLAN HELPS YOU SELL.

**C. L. PERCIVAL COMPANY**

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51 YEARS OF SERVICE 1886-1937

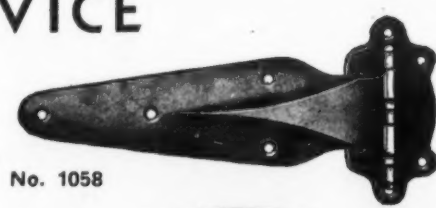
## KASON FORGED-BRASS HARDWARE FOR SUPER-SERVICE

MODERN REFRIGERATION demands hardware of super-service quality—hardware which will serve faultlessly and faithfully in this severe type of service and surmount the climatic and atmospheric conditions peculiar to it. KASON has provided this type of super-serviceability in its Forged-Brass Hardware, which by reason of its greater tensile strength and wider elastic limit is unqualifiedly the hardest metal construction known to the industry.

A complete line of KASON Forged-Brass Hardware for the refrigerator manufacturer is presented in detail in Catalog No. 38 now ready for distribution.

**KASON HARDWARE CORPORATION**

127-137 Wallabout St., Brooklyn, N. Y.



No. 1058



No. K-54B



## Growth of Minneapolis-Honeywell Co. From \$1,500 Investment to Industrial Giant Traced by 'Fortune' Magazine

MINNEAPOLIS - HONEYWELL REGULATOR CO.'s development from the invention of the original Butz electrothermostatic domestic control system to the firm's present status as a giant of its particular industrial field is the subject of an article in the November issue of Fortune magazine.

In an informal style, the article

tells of the way in which, about 50 years ago, A. M. Butz rigged up a contraption which automatically controlled the dampers of the furnace in his home near Minneapolis. Butz patented his gadget, which was made of a short bar of brass to which was cemented a thin piece of hard rubber, and began manufacturing it. His company was called the Consolidated

Temperature Controlling Co.

William R. Sweatt\* at that time was owner of the Sweatt Mfg. Co., producing woodenware. When approached by a solicitor from the Consolidated Temperature Controlling Co., which Mr. Butz was finding hard to keep going, Mr. Sweatt agreed to invest \$1,500 in the venture.

Immediately he was made a director of the firm, and although he took little active interest in it, he came back from a trip to the Chicago World's Fair of 1893 to find out that in his absence he had been elected secretary and treasurer.

His first step in reorganizing the outfit was to incorporate a new company, called the Electric Heat Regulator Co., into which the stockholders of the old company put a total of \$40,000.

### SWEATT TOOK BURDEN

"Sweatt worked without salary," the Fortune article continues, "but was unable to do more than pull the company out of debt about once a year, and by 1896 he grew weary of the job. He notified the directors one day that he 'had writer's cramp from signing notes,' and that his vest buttons 'were worn smooth from rubbing against bank counters'—in brief, that he was through.

"But no one else was willing to take over, and to save the business from disappearing completely the directors offered to let him continue to run it as his own, with the stipulation that out of profits he should pay back to stockholders the \$5,000 at which the physical assets of the company—all that was left—were valued.

"To this Sweatt consented, and three years later he wiped off the last of the stockholders' claims, inherited the stock, liquidated his interest in the Sweatt Mfg. Co. (as the Puffer-Hubbard Co. it still survives),

time propounded two more dicta which eventually were to transform it from a little little business to the big little business that it is today. The first was that instead of confining itself entirely to domestic heat regulation, Minneapolis should expand and diversify until ultimately it would supply controls for every purpose.

The second general policy of the H. W. Sweatt regime was really not a policy at all but an evolutionary necessity created by the program of expansion.

The policy here indicated is that of buying out, or merging with, other companies in the same or closely related fields.

"After the million-dollar year, 1919, sales fell back to about \$250,000 annually during the post-War slump, then rose sharply until 1926, when sales were \$2,153,000 and earnings reached \$424,000. Next year the company changed its name once more and made its first important consolidation when it merged with the Honeywell Heating Specialties Co., of Wabash, Ind."

### ABSORBED HONEYWELL

The Honeywell company led the field in controls for oil burners at that time, and sought to oust the Minneapolis firm from its lead in the field of controls for coal furnaces. In turn, Sweatt wanted to take over the Honeywell position in the oil burner market, and the resultant competition proved so wasteful that a merger was agreed upon.

"Minneapolis Heat Regulator Co. became Minneapolis-Honeywell Regulator Co." (This was in 1927.) "Mark C. Honeywell, president of the Wabash concern, became president of the new hybrid; his lieutenant, Willard Huff, came in as treasurer; and the stockholders were consoled with cash and a new issue of com-

out the Bishop & Babcock Mfg. Co.'s heat-regulation division.

"But the Bishop & Babcock products and patents were never exploited, and this year Minneapolis purchased the National Regulator Co. of Chicago, a pneumatic-control firm with a limited sales organization but with a thoroughly reliable line well liked by the trade. This was tantamount to complete surrender, and today Minneapolis-Honeywell meekly admits that pneumatic controls have their niche. This admission is the final curtain in the little drama of the company's one and only fiasco—like so many others, a clear case of the *idée fixe*."

### FINANCIAL STATUS

Reports Fortune with respect to the company's volume of business and profits:

"Sales for the year showed an increase of 49% over sales for 1935, all lines manufactured by the company showing satisfactory sales gains."

"With this single, colorless sentence Minneapolis-Honeywell's annual report for 1936 announced that the company had just closed by far the biggest year in its history; that it had, in fact, surpassed 1935 (the biggest year while it lasted) by some \$4,000,000 in sales and over \$1,000,000 in profits."

The company's net profit for 1936 was \$3,082,000, which was just under 23% of the net sales of \$13,546,000, the article states.

"In the worst depression year, 1932, net income was better than 5% of net sales.

"An interim statement for the first six months of 1937 shows sales of \$7,743,000 and profits of \$1,441,000, compared to sales of \$4,618,000 and profits of \$647,000 in the corresponding period last year. If 1937 were like any other year the company would do the larger part of its business in the second half, especially the last quarter, and sales volume for the year might run to \$20,000,000, profits as high as \$4,500,000 on the basis of 1936.

### PRESENT PROSPECTS

"However, the management feels that the first six months' business is abnormal, probably having been blown up by advance buying in anticipation of higher prices. Therefore, second half sales are not expected to total more than \$7,500,000, and possibly rather less."

Summing up the history of this amazingly profitable "gadget" manufacturing concern, the Fortune article says:

"... William R. Sweatt's original \$1,500 investment in a bankrupt company increased and increased and increased until today the offspring of that company has a net worth of \$9,225,000—which at the 1936 rate is being balanced by profits every three years."

### Norge New Orleans Salesmen Plan Fall Campaign

NEW ORLEANS—Approximately 125 dealers and salesmen were guests of Norge Products Co., distributor, at the company's annual fall meeting.

Morning session was devoted to a preview of Sparton radios, for which the Norge Products Co. was recently appointed distributor.

Speakers at the afternoon session, in which Norge products were featured, included J. M. Tenney, district sales manager of Norge Corp., Dallas, and George Lehlertner, manager of Norge Products Co.

1961 Our 76th Anniversary 1937

MASON, FENWICK & LAWRENCE

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TRADE-MARKS REGISTERED

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REFRIGERATION TUBES

They Flare without cracking

THE AMERICAN BRASS CO.

FRENCH SMALL TUBE Branch

General Offices: Waterbury, Conn.



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IMPERIAL S. A. E. flared fittings have been setting a mighty fast pace in the air conditioning and refrigeration field... and their rapid acceptance by installation and service men is based on results. Imperial fittings are tight when the job is finished and they stay tight.

Write for catalog covering complete listing of sizes and prices.

IMPERIAL BRASS MFG. CO., 565 S. Racine Ave., Chicago



### S. A. E. FLARED FITTINGS

Brass forged nuts, tees, elbows and crosses—will not crack. Heavier and stronger than standard—non-porous—no seepage or season cracking. Tees and elbows have flats for wrench.

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VALVES • TOOLS • CHARGING LINES • FLOATS • DEHYDRATORS • STRAINERS



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All bearings diamond bored. Positive lubrication of parts by newly developed process plus forced feed lubrication in all models.

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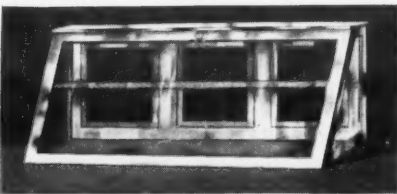
A stainless steel refrigerated case for preserving and displaying perishable food. Overhead fin refrigeration coil. A type for restaurants, large and small.

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2322 Ogden Ave.  
Chicago, Ill.

Leitner PREMIER

REFRIGERATED WINDOW DISPLAY CASE

Write TODAY FOR FREE CATALOG



IS CUSTOM BUILT...

## TYLER WELDED STEEL REFRIGERATORS



### A COMPLETE NEW LINE FOR 1938

Fastest selling line ever offered to the trade. Completely covers the field. Pace-setting values in Top Display and Double Duty Cases—6, 8, 10 and 12 foot lengths... Two shelf cases... Delicatessen cases... Reach-In Boxes... Walk-In Coolers. All streamlined with striking modern beauty and engineered with latest improvements.

With this new Tyler line of commercial refrigerators you can step out ahead of all competition. Write today for free literature and attractive dealer proposition.

TYLER FIXTURE CORP. Dept. R, NILES, MICH.  
NEW YORK OFFICE, 681 W. 26th St. CHICAGO OFFICE, 1663 W. Ogden Ave.

and began devoting all his time to making and selling thermostats.

"By the turn of the century the merchandising problems confronting Mr. Butz in 1884 had been largely overcome by the march of progress—as represented by the widespread installation of damper-equipped coal furnaces—and the thermostat business gradually passed out of its infancy.

"So well known did the company become that in 1912 the name had to be changed to the Minneapolis Heat Regulator Co., since the public invariably addressed it and referred to it as such.

### RAPID GROWTH BY 1920

"In 1913 sales of Minneapolis control devices were less than \$200,000. In 1919 they crossed the million-dollar mark for the first time.

"Regardless of whether the 1913-19 spurt was the result of natural causes or the Sweatt smartness, the mentors of the company about that

\*Mr. Sweatt died between the time the article was written and the time it was published. It serves in a manner as a fitting tribute to an industrial pioneer and leader.

mon shares. . . . and Minneapolis-Honeywell appeared on the Chicago and later on the New York Stock Exchange.

"In 1928 Minneapolis-Honeywell sold goods to the value of \$5,200,000 and had a net income for the year of \$1,037,000. The earnings . . . were greater than the combined profits of the predecessor companies in any former year.

"An expansion of plant, sales organization, and products followed soon after the first merger.

### BRANCH SALES BIG

"Gradually the control salesmen became control engineers as well, and over a period of years Minneapolis-Honeywell opened up 38 branch offices all over the country. Today 70% of Minneapolis-Honeywell's business comes from its branches, the balance being accounted for by home-office operations and by independent distributor sales.

"In 1931 the company acquired the patents and properties of the Time-O-Stat Controls Co. of Elkhart, Ind., and three years later made its second major consolidation by taking over the austere Brown Instrument Co. of Philadelphia.

"The latest Minneapolis-Honeywell consolidation was in the nature of a diplomatic defeat. The trade had about concluded that Minneapolis-Honeywell would have to retreat from the space-heating field, but in 1936 there was a counterattack. Minneapolis-Honeywell announced that hereafter it would be in a position to supply both electric and pneumatic controls, for it had bought

## COMPLETE AND MODERN

LINE OF COMMERCIAL  
HARDWARE FOR  
EVERY APPLICATION

GRAND RAPIDS BRASS COMPANY  
GRAND RAPIDS, MICHIGAN



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## CLASSIFIED ADVERTISING

RATES: Fifty words or less in 6-point light-face type only, one insertion, \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning and Refrigeration News, 5229 Cass Ave., Detroit, Mich.

### POSITIONS WANTED

**MANAGER COMMERCIAL** Refrigeration Department for a General Electric distributor selling more than \$100,000 annually, desires connection, preferably traveling for manufacturer, available at once. Excellent references. E. L. HILL, 5879 Etzel Avenue, St. Louis, Mo.

**MANUFACTURERS**—Sales Representative having 15 years' experience in wholesaling and retailing of refrigerators and appliances is moving to Los Angeles and wants to represent reputable refrigerator manufacturer and kindred lines being sold to distributors or jobbers on Pacific Coast. Drawing account against commission or straight commission. Ample financed. Further information upon request. Box 984, Air Conditioning and Refrigeration News.

**REFRIGERATION ENGINEER**, fourteen years of experience in service and engineering on commercial and domestic. Capable of handling sales and sales training. Would like connection with manufacturer or distributor as field representative in either sales or service in Missouri or Illinois. Box 985, Air Conditioning and Refrigeration News.

### BUSINESS OPPORTUNITY

**OPPORTUNITY FOR executive** to invest in long-established manufacturing business. Owing to recent death of the treasurer this opening is offered to an experienced executive to become financially and actively interested in the company, which has for years conducted a successful business. This is a fine opportunity for an executive with experience in production or general business management. In confidence we will exchange all important particulars, either through correspondence or personal interview. Box 986, Air Conditioning and Refrigeration News.

### FRANCHISES AVAILABLE

**DISPLAY CASES, walk-in coolers, and a complete line of reach-in boxes and market equipment.** Will offer a franchise to commercial dealers. Long discounts with financing arrangements. To increase your commercial volume, write today for complete information. FOGEL REFRIGERATOR COMPANY, 16th & Vine Sts., Philadelphia, Pa.

### EQUIPMENT FOR SALE

**SERVICEMEN:** Make real profits using our specials. All New: 1 dial Ranco cold controls \$3.19. 2 button Cutler-Hammer cold controls \$3.69. Detroit model 250 high & low pressure controls \$7.45. 1/4 H. P. 60 cycle Delco capacitor motors, rubber mounting, \$6.95. Model 674 Detroit thermo expansion valves \$4.20. 1/4 H. P. air cooled condenser \$1.00 each. 7 3/4" x 2 1/2" x 1/2" bore 3 blade fans, 3 for \$1.00. Satisfaction guaranteed. REFRIGERATION PRODUCTS, INC., 122 W. Illinois Street, Chicago, Illinois.

**SERVICEMEN AND DEALERS** save money. Buy "used as is" refrigerators. Spray and recondition them yourself. Kelvinators \$12.00; Fridaires \$15.00; Copelands \$14.00; Bohns \$14.00; General Electric \$15.00; Majestics \$12.50; Electrolux \$25.00; others \$10.00. Closeout ten 5 1/2 cu. ft. 1936 Stewart-Warner \$84.75 each. PILGRIM REFRIGERATION CO., 45-33 50th Street, Woodside, L. I., N. Y.

**RE-MANUFACTURED SPECIALS.** G. E. cold controls \$2.75. Ranco 2 button stainless steel cold controls \$2.95. Detroit Lubricator model 250 high & low pressure controls \$5.95. Gibson pump assemblies for semi-hermetic units \$4.75. Gibson seals \$1.85. Detroit automatic expansion valves, newly electroplated, \$2.25. Detroit model 673 thermostatic expansion valves \$3.95. Detroit model 674 thermo expansion valves \$3.65. 3" x 8" oval end receivers with valve \$1.10. Satisfaction guaranteed. REFRIGERATION PRODUCTS, INC., 122 W. Illinois Street, Chicago, Illinois.

**SERVICEMEN!** Find out if you're losing money on any job before you lose it. Use our Work Tickets—a complete and simple record form, in duplicate, numbered blocks. 10 books @ \$1.25 each, 20 @ \$1.00, 40 @ 75¢. Send for samples. EWELL PRINT, 187 Highland St., Brockton, Mass.

### REPAIR SERVICE

**HAVE YOUR controls and valves rebuilt** like new for half the price of new. All valves and control bellows newly electroplated. Domestic cold controls, modern types, only \$2.00. Automatic expansion valves, Mayson, \$1.00. Automatic expansion valves, all other makes, \$1.75. Thermostatic expansion valves, all makes, \$3.25. Commercial controls \$2.75. Valves and controls calibrated and set to original specifications unless otherwise specified. REFRIGERATION PRODUCTS, INC., 122 W. Illinois St., Chicago, Illinois.

### PATENTS

**HAVE YOUR patent work done by a specialist.** I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

## Landmesser Heads Norge Commercial Sales



WALTER LANDMESSER

(Concluded from Page 1, Column 5) consisted of nothing but a file of three letters."

His new post at Norge will embrace responsibility for all activities of the commercial refrigeration department. Mr. Landmesser's plans for the future are directed toward expansion of the Norge commercial line as well as expansion of the business. He will report directly to P. B. Zimmerman, vice president in charge of sales.

## Realignments Made in G-E Appliance Staff

**CLEVELAND**—Personnel changes in both headquarters and district organizations of General Electric's appliance and merchandise department have been announced by Ralph J. Cordiner, general manager of appliance sales. The new appointments were effective Oct. 1.

C. R. Thorson, formerly district appliance sales manager at Minneapolis, has been appointed sales manager of the electric clock section at Bridgeport, Conn. J. P. Rainbault continues as manager of the clock section.

T. B. Allen, formerly district appliance sales manager at Atlanta, has succeeded Mr. Thorson at Minneapolis, and J. M. Walker, formerly general sales manager of Rex Cole, Inc., New York City, has been appointed district appliance sales manager at Atlanta.

Mr. Thorson joined General Electric in 1930 as a merchandise salesman in the Boston area, and later was placed in charge of home laundry equipment sales in Philadelphia. He went to Minneapolis as district appliance sales manager in 1935.

Mr. Allen was with the Willis Co., specialty appliance distributor in Canton, Ohio, and was sales manager when he joined G-E's refrigeration department in 1931 as district representative in Philadelphia. In 1933 he was named district manager of specialty appliance sales in Atlanta, and became appliance sales manager for the district in 1936.

Before joining G-E, Mr. Walker was with Easy Washing Machine Corp. in its southeast territory, with Newport News Gas & Electric Co., and with Appalachian Electric Power. After serving with a G-E distributor, he entered the company's refrigeration department, contacting public utilities.

In 1934 he became holding companies' representative and eastern district sales manager for specialty appliances in New York, and was appointed general sales manager for Rex Cole, Inc. Most recently he has been with the General Electric Home Bureau in charge of field operations.

## Schuler Directs Westinghouse Industry Advertising

**EAST PITTSBURGH**—H. S. Schuler, formerly account executive with Ketchum, McLeod & Grove, Inc., advertising agency, has been appointed division manager of industry advertising of Westinghouse Electric & Mfg. Co., according to an announcement made recently by J. M. McKibbin, sales promotion and apparatus advertising manager.

Other division advertising managers appointed by Mr. McKibbin are T. H. Cable and J. H. Thompson.

## Knudsen Points Out Fallacies of Hasty Unionization; Warns That Capital Labor Breach Must Not Widen

**BOSTON**—The gulf which is being fostered between capital and labor must not widen, William S. Knudsen, president of General Motors Corp., declared here Oct. 28 in a talk at a dinner given by the Associated Industries of Massachusetts.

"The opportunity for the individual to progress in any organization through ability and merit must be protected in order that progress may continue and the American standard of living be kept in the vanguard of the world," Mr. Knudsen said.

Turning to a discussion of the fundamentals underlying the union movement, he declared:

"Men will band together on the basis of craft, and with some sense, the idea being hundreds of years old. To hold that machine operators cannot be organized on the same basis is due to ignorance of the job itself. From the standpoint of organizing it is expedient and lucrative, but to say that a toolmaker or first class grinder should concern himself with the plight of his union brother who is pushing a truck is a pretty general viewpoint.

### HASTY GRIEVANCES

"This is one of the dangers of the industrial union as far as strikes are concerned. A strike binds everybody in the shop to take up the dispute of somebody they are not at all interested in, with the result that the union officials have to hastily dig up enough grievances for everybody in order to hold the strike together, regardless of whether conditions in nine tenths of the plants are satisfactory.

"On the other hand, it also is dangerous to the union because the worker is generally hard-headed enough to size up the dispute from his own standpoint and objects to losing time if he gains nothing thereby. Also the union officials have difficulty preventing some young hot-head from shutting down a plant employing thousands of people because a few of his fellows have an argument about something.

### NEED FOR RESPONSIBILITY

"We have instances in which the grievance of a dozen men have caused 5,000 men to lose three or four days' pay, and most of the peace negotiations consisted of the union's effort to prevent the perpetrators from being discharged. The economic weapon which in this case is placed in the hands of an individual wholly incapable of even figuring the extent of its magnitude or the probable result of a shut-down makes, to my mind, the strongest argument for discipline and responsibility of unions, even if it has to be done by law.

"The direct action which followed the split in the union ranks late in 1936 and in the early part of 1937 was unnecessary and expensive. The organization which sponsored it had a previous strong and nasty strike record. It was unwilling to await the confirmation of the Wagner Act by the Supreme Court, and took matters in its own hands through fear that the Act might be proclaimed unconstitutional.

### FEAR OF GOVERNMENT

"We had the spectacle of government officials being fearful of taking a stand on the sit-down feature of the strike, and, with that, a general breakdown of law for a period of six months.

"The whole effort was ill-planned, and would have been abortive or have caused bloody riots, but for the fact that the government finally stepped in and practically ordered settlements on a temporary basis of recognition for members, and the collective bargaining clause was saved for the union. All this hue and cry about collective bargaining could have been considerably less expensive if some ground rules had been set up. As it was, the early stages of the conflict resembled very much a ball game without an umpire, and with everybody in the grandstands hollering advice.

"I think that with the Wagner Act in force, everything depends upon whether it will smooth out or lessen industrial stoppages. If it

won't, it will probably fall of its own weight, or it will be necessary to strengthen it so that it will function in an orderly manner. To say that it is the Magna Charta of labor is all right, but it must prove its value in giving men uninterrupted work with consequent better earnings, or it will be a Magna Charta no longer.

"Collective bargaining will eventually become orderly, but in order to have intelligent collective bargaining both sides must know the facts and be willing to present the facts. When they are known there is seldom much trouble about a settlement.

"American industry must go forward, fight or no fight. Let us hope we can go forward peacefully and in an orderly manner without class cleavage entering into the question. Our standard of living has been obtained by narrowing the gulf between capital and labor. To widen it will unquestionably tend to lower this standard of living instead of raising it.

"I think there is a place in the picture for both capital and labor, and that place can best be determined by an examination into the economics of both sides. I think that labor's fair share in the proceeds of business should be determined by what the pay envelope buys, and that the relationship of costs to prices should be examined before a false money standard per day or per annum is proposed.

"Management has to keep the wheels of industry going. The profit motive can not be destroyed without destroying private capital, which means destroying private industry."

Dayton V-Belts are the logical choice for all types of appliances, because they provide silent, dependable transmission—because their powerful grip prevents slippage—because they run smoothly without weaving, twisting or vibrating. A nearby distributor carries a complete stock.

THE DAYTON RUBBER MANUFACTURING CO.  
DAYTON, OHIO  
WORLD'S LARGEST MANUFACTURER OF V-BELTS

**Dayton**  
V-BELTS

## OVER 40 YEARS OF PROFITS...

... and personal family service for our Distributors—More profit-sharing members are invited to join our large family

**Enjoy Jobber Profits With Direct Factory Buying Power**

**BROMANN BROS.**

857 West Fulton St. Chicago, Illinois

**HARRY ALTER'S** *it's new!*  
1937 Catalog of Air Conditioning and Refrigeration Parts and Supplies... **SEND FOR IT NOW!**

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BRANCHES NEW YORK ST. LOUIS CLEVELAND

**HOW** can condensation and drip be overcome in a Walk-In Cooler? Write for interesting new data on the Rempel

**AUTODRAFT REMPEL**  
UNIT COOLER COMPANY

Gives Important Data Every Refrigerator Man Should Have.

340 N. Sacramento Blvd. CHICAGO

**KOLD-HOLD**  
ICE CREAM CABINET  
CONVERSION UNITS

Modernize old equipment... provide much greater storage space for packaged goods... eliminate brine leaks and attendant odors... reduce weight and simplify installation... require a minimum of service... provide ideal temperatures under all conditions... cost less to operate... quickly and easily installed in any standard cabinet at small cost.

Write for Complete Facts  
**KOLD-HOLD MFG. CO. - LANSING, MICH.**